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OBSTRUCTION OF THE LOWER END OF THE URETER FOLLOWING CERTAIN BLADDER OPERATIONS

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SOME years ago I read a paper before the American Association of Genito-Urinary Surgeons*, showing how, in certain cases, extensions of carcinoma of the bladder, as well as extensions of carcinoma of the prostate by way of the bladder, had hurried, if not indeed, been the immediate cause of the fatal outcome by insidiously encircling and pinching the ureter just above the bladder, eventually precipitating a uremic condition. These deaths were due to an extension of the malignant process; this was bilateral at least in one prostatic case. The present paper has to deal with a more hopeful type of post-operative ureteral obstruction.

Lately, two cases have come to my notice in which a postoperative scarring of the lower end of a ureter, due *not* to a progression of the malignant disease, for which the original operation had been done, but to a fibrous contraction following its wide removal and clinical cure, had in *one* instance led to a pyelonephritis demanding a nephrectomy and in the other to the carrying out of a dilatation of the lower end of a partially obstructed ureter in the hope of saving a kidney threatened with destruction, due to constriction of the lower part of its ureter.

CASE 1: The first patient was a physician of 64, referred to me in 1927. He had at that time a mass as large as a silver dollar in the region of his right ureter. On May 5, 1927, through an incision a little to the right of the median line, I freed his bladder from behind and on his right side, before opening it. I was thus able to locate the ureter very deep in the pelvis and feel the bladder wall thickened with the tumor mass. I opened the bladder from the outside with a cautery and cut around the mass which went pretty well forward to the bladder outlet in front, and very close to the ureter behind, but not involving either. The entire thickness of the wall was removed; there was considerable bleeding from very arteriosclerotic vessels, some of which I tied and some of which I closed with a stitch, but I was forced to leave two clamps. I drained the space outside the bladder with two big wicks, and closed the bladder as best I could about a suprapubic tube. While the ureter apparently was not involved, it was very near my incision; however, the patient's condition would not allow any plastic. The pathological examination showed carcinoma. There was a slow convalescence with leakage off and on for four months.

August, 1927, some little doubtful places in the region of the bladder scar were touched with the high frequency current. Cystoscopy in 1928 showed nothing abnormal other than deformity of the bladder, due to operation. In 1931, the patient reported by letter that he was well.

June 28, 1932, the patient entered the hospital with the story of having felt poorly for some days, passing little urine, chilly with temperature, nauseated, and vomiting at times. His urine was very turbid. He felt sure he had a recurrence of his growth. He was given frequent and generous subpectorals; cystoscopy done in bed showed nothing in the way of a recurrence. His NPN varied from 92 to 109 mg. the first three days he was in the hospital but then gradually came down. In a week the amount of his urine was up and his temperature better. Attempts to catheterize his right ureter were futile; all catheters were held about 1 cm. up. His left ureter was catheterized easily. Phenolsulphonephthalein appeared in two minutes and the output was 21% in 15 minutes. Its urine showed no pus. With the left ureter pretty well occluded by a No. 9 catheter I collected the urine from the right ureter by taking it from the bladder through the cystoscope. The phthalein appeared in 10 minutes and its output was 5% in 15 minutes. There was a question whether this specimen was not in part leakage about the left catheter. Intravenous pyelography showed a normal pelvis on his left appearing early; on his right no sign of a pyelogram for nearly an hour, and then very vague. I concluded that the patient had a suppurative pyelonephritis on his right, that was due to pinching of the ureter in the bladder wall, and that this stricture interfered with the drainage of his right kidney, causing his temperature, toxic vomiting, and uremic condition.

July 25, 1932, I cut down on his right kidney and found it buried in a mass of thickened, adherent perirenal fat. I found when I got down to the true capsule that there had been a considerable subcapsular hemorrhage, due undoubtedly to my manipulation. I opened the capsule, let out the blood, and did a subcapsular nephrectomy; some of the vessels I was able to tie satisfactorily, others I could not trust so I left two clamps. This patient made a rather slow convalescence but went home four weeks after operation in very fair condition. He remained well for some time but I am told that recently, January 1933, he has had symptoms that have been diagnosed as carcinoma of the stomach. His physician said he could see no reason to suppose this was secondary to the bladder disease.

CASE 2: A single woman of 51 consulted me in September, 1925, with the history that about eight years before she had noticed that her urine, which "had

*The Part that Obstruction of the Ureter Plays in the Outcome of Cancer of the Bladder. Trans. American Association of G-U Surgeons Vol. XX—1927.

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a strong smell of ammonia", would shut off suddenly; three years later she had noticed a few drops of blood at the end of urination. She said that under various treatments, including bladder irrigations, this bleeding stopped for a time. She had had no pain until the previous month, since which time she had been passing "all blood" and urinating very frequently.

Cystoscopy showed a shaggy mass involving the anterior part of the right side of her bladder. September 21, 1925, through a suprapubic cystotomy, the mass on her right was clamped and cut around with a cautery. The incision in the bladder wall was closed with sutures. The growth was reported microscopically as "papilloma of bladder".

The next March her suprapubic incision opened but closed again. August, 1927, I dissected out a hard ulcer in the suprapubic scar; microscopically it was a "chronic inflammatory" process. December, 1929, a little filmy mass at the end of the right ureter was fulgurated; I could pass an instrument up the ureter easily; again in the next two years I found a little place on her right; and touched it with high frequency. In July, 1931, the whole region of the right ureter was free, but there were two little raised places, (papilloma?) near the base on the left side of the bladder, behind. In April, 1932, a little filmy material projecting from the right ureter was treated with high frequency. June 2, 1932, the patient reported that she had been upset for some weeks with temperature, rapid pulse, pain in right side of abdomen, and considerable loss of weight. Examination in my office showed her right kidney low and tender; urine turbid; temperature 100; pulse 122; I could not catheterize her right ureter. July 25, 1932, she reported that she had been in bed with temperature; she had lost 20 lbs. in weight. Her bladder was normal but I could not catheterize her right ureter. Liver two fingers below costal border; temperature; I advised hospital for study, which again showed that we could not catheterize the right ureter. Large catheter in left ureter; indigo carmin from that side in two minutes; that from the right side indirectly through cystoscope; urine came fairly soon, smaller in amount; it was turbid; color in nine minutes; much paler and less in amount; it was estimated from the color that the left kidney was doing four times the work of the right. An intravenous pyelogram showed lobulation in the right kidney. August 2, 1932, right Pfannenstiel-Gibson incision; ureter recognized where it crossed the promontory of the sacrum; it was followed down a short distance but I could feel no obstruction; two guide sutures were put in, the ureter opened; there was some leakage of urine but no marked dilatation. After considerable difficulty I passed a small bougie No. 6 or No. 8 through the incision in the ureter into the bladder. An assistant found it with an observation cystoscope, and with alligator forceps passed beside the cystoscope, brought it out through the meatus; a No. 12 soft rubber catheter was pulled over its upper end and guided down the ureter and out the meatus; the upper end of the soft catheter was passed up the ureter for 3-4 cm.; the lower end was stitched to the meatus, the incision in the ureter closed with a few sutures, and the abdominal wound closed in layers around a rubber wick; an inlying catheter was left in the bladder. Cystoscopy two weeks after operation showed the place where the ureter catheter entered the bladder. It drained well up to the time of its removal, about three weeks after operation. This patient has been free of her attacks of pain and temperature since, and I have been able (February, 1933) to pass two No. 6 ureter catheters simultaneously up her right ureter; there is no pain, no residual, and the kidney excretes well; there is practically no pus.

The first patient with the partly disorganized right kidney makes me wonder how large a proportion of patients on whom we remove bladder growths, more or less widely, that are in close proximity to a ureter, finally lose that kidney from scar tissue formation about the lower end of its ureter, even in cases where there is no clinical evidence of return of the growth. This patient was watched as regards the recurrence of his bladder growth and no evidence of this was ever found; nor did he have any symptoms of pinching of his ureter until some five years after his first operation. That the process had really been a slow one seems evident from the thick involucrum of hardened fatty capsule about the kidney that made an intracapsular nephrectomy advisable.

The attack of impending anuria that this patient had on his admission to the hospital is of much interest in spite of the frequency of this condition. It illustrates the ease with which an inflammation of one kidney may, under certain circumstances, bring about, through the united action of temperature, vomiting, and consequent inability to take water by mouth, a dehydration and consequent toxicity that is extremely dangerous. The influence of the diseased kidney on an apparently well fellow is very startling and is only less impressive than the sureness with which, in all but the rarest instances, this suppression, in the presence of a good kidney, will yield to an adequate use of salt solution under the skin. I assume that it may have been conditions of this sort that led to the use of the term "reno-renal reflex". When not recognized, conditions of this sort may be fatal, but usually do well when recognized and vigorously treated.

The symptoms in both of these patients were bladder irritation, a turbid urine (but not coming on early in the second patient) tenderness over one kidney and in the corresponding side of the pelvis, and finally temperature, more or less irregular in type. The second patient came into my office with a temperature of 100.2 and a pulse of 120, having lost 20 lbs. in an attack of what, because of its vagueness, had been called "abdominal grippe". In neither patient was I able to catheterize the ureter on the diseased side; it was obstructed to various catheters within a centimeter or so of the bladder. In both, however, I was able to catheterize the ureter on the well side and to get a good idea of the condition and functional ability of that side as well as of the diseased side, by the familiar manoeuvre of passing a big catheter up the ureter of the well side and then simultaneously collecting the urine from the diseased side through the inlying cystoscope.

The use of intravenous pyelography was a great help in determining the probable condition of the diseased kidney.

Both of these cases have been very instructive to me in showing how the secondary results of an operation that had been highly successful primarily, in relieving a serious condition, had in time produced another, though less serious condition, that menaced the patient's safety.

Cases of this type present several problems; the cause of the stenosis—how we can prevent such a thing happening—and it having happened, what will indicate its presence, and what we must do to remedy it. It seems perfectly evident that the trouble in both of these cases was due to a faulty manner in dealing with the ureteric orifice. We know that stenosis does not follow all operations for the excision of tumors in the neighborhood of a ureter, that following the removal of bladder growths, involving the general region of a ureter, we may have two conditions that affect the ureter, due entirely to the scarring process following the removal of the growth, and not to extension of the growth. In one type the orifice is dragged open, more or less trumpet shaped; this seems to be the result of the contraction of the scar that follows the destruction or removal of the bladder mucosa near the orifice or even involving a part of the circumference of the mouth of a ureter; it may allow a reflux of urine, even to the kidney, but does not need treatment in such cases as I have seen; three such cases that I have followed for some years are without evidence of constriction. In the second type there is a stenosis of the ureter a centimeter or two above its orifice. This seems to be especially apt to occur in patients in whom the whole circumference of the mouth of the ureter has been involved, or in whom, as in the second patient, there had been an injury to the inside of the ureter as in fulgurating a bit of papilloma that was at its orifice. It may be, however, that this condition is due, in whole or in part, to an inflammation that has extended up the wall of the ureter. In the first of the reported cases I was not aware of injuring the ureteric orifice but I may have done so; in the second I did fulgurate very lightly a small mass protruding from the orifice on that side.

I suspect that dilatation of the mouth of a ureter follows the cases in which there has been the removal of a considerable area of bladder mucosa near the ureter even when the orifice is not involved in the incision; that in instances where there is a removal of a part of the circumference of the orifice, this probably also occurs. Those cases where there is an injury involving the whole circumference of the ureter are more likely to be followed by a stenosis. I will cite in substantiation of the probability of this, the history of a patient upon whom I operated in December, 1921, for a soft papillomatous growth as large as the distal joint of my thumb; this was near the orifice of the left ureter. The growth was clamped and cut away with a cautery with a good amount of pedicle and was, I thought, free from the ureter. I found on examining the specimen that I had removed with it a small amount of the entire circumference of the ureteral orifice. This man's condition was none too good, and, as a short time before, a very good surgeon had told me that he believed one need rarely pay attention to the intravesical end of a ureter that one had injured in an operative manoeuvre, that so long as there was a functioning kidney above it, it would take care of itself, I let the ureter alone. The patient made a slow convalescence and began in some weeks to have symptoms of obstruction of his left ureter. Three months after operation I attempted to catheterize it. I could pass a catheter only about 2 cm. Its removal was followed by a spurt of purulent urine. A week later I passed a No. 5 catheter to the kidney pelvis and removed about 15 cc. of turbid urine—2½ weeks later I could pass nothing into his ureter. Four months after his first operation I did a retroperitoneal reimplantation of his left ureter into his bladder. This man had a rough time from the start and died suddenly during the fourth night following operation; presumably of an acute cardiac complication. There was no autopsy. I have been unable to find any pathological report on the nature of the original growth, but regardless of the nature of the growth, I believe the untoward outcome was due to the unwise treatment of the ureteric orifice during the removal of the bladder tumor.

The most evident way in which we can avoid an unrecognized injury to a ureter during the removal of a bladder growth, is to locate the ureter before we begin the operation, if possible by the introduction of a ureter catheter. If this is not possible, then by good intravesical lighting and the use of a catheter or long probe during operation, one may be able to find the orifice that he could not find before. A better method that I have used of late is to inject an ampule of indigo carmin solution just before operation. This, in the relatively few times that I have used it, has been a great help in locating the point where a ureter entered the bladder. When a tumor surrounds the ureter I have, on a few occasions that I remember, reimplanted the ureter into the upper end of the incision without clinical evidence of it making trouble, but there is reasonable possibility, under the circumstances, of the kidney being already badly crippled. When one's incision involves the orifice of the ureter or is very close to it, I believe the intravesical part of the ureter should, if possible, be slit up and the sides overcast. I realize, however, that there are some cases in which it is very difficult to recognize the ureter at operation and some in which, because of the patient's condition, it would not be wise to carry out any plastic that would be long or difficult, even under favorable circumstances.

In cases in which one has not been able to recognize the ureter or any injury to it at the time of operation and in cases like that of the

second patient in which later there is complaint of pain and temperature, one should be alert to study the condition and save the kidney; it may be that even the reimplantation of the involved ureter may be indicated.

CONCLUSIONS: Following the removal of bladder growths involving the general region of a ureter, we may have two conditions that affect the ureter due entirely to the scarring process following the removal of the growth. In one type of deformity, the more common, the orifice is dragged open, more or less trumpet shaped; this seems to be the result of a scar near to or even involving a part of the circumference of the ureter; it may allow a reflux of urine even to the kidney; it does not seem to be followed by a stenosis. In the second type there is a stenosis of the ureter at or just above the orifice. This seems to be especially apt to occur in patients where the circumference of the ureter has been involved, or when, as in the second patient, there had been an injury to the inside of a ureter, possibly in fulgurating a bit of papilloma that was at its orifice. Cases of the latter type are capable of recognition in certain instances and of relief.

I believe, however, in this, as in so many things, we should be careful in our operations on growths that involve the region of a ureter to locate early, if possible, the ureteric orifice. I fully appreciate that this is not always possible but may be done rather easily by the use of indigo carmin in many instances; that when we find we have injured the ureteric orifice we should at least slit it up for a short distance in the bladder wall and overcast its edges, when this is possible; that in cases in which one has not been able to do this and in which a patient later complains of pain and temperature, one should be alert to study the condition and carry out some plastic that will correct the condition and save the kidney. It was very interesting to me to find that in the second patient I was able to carry out a dilatation from above downward through an opening in the ureter. Seven months after operation I am able to pass two No. 6 catheters simultaneously through the ureter with ease where I had been unable to pass anything from below and had difficulty in passing a No. 6 or No. 8 bougie with a filiform from above. I assume that this kidney will remain well as long as the dilatation is kept up. I have no explanation to offer as to why these narrowings in the few reported cases should be found from one to two centimeters up the ureter rather than at its orifice.

PNEUMOCOCCUS LOBAR PNEUMONIA*

BY DWIGHT O'HARA, M.D.†

IT has always seemed to me that our friends the clergymen increase the effectiveness of their discussions by the use of texts, and I am not sure that a Concordance of Medical History would not be of service whenever, as in the present case, we begin the discussion of a disease that has plagued our predecessors throughout the ages. I am, therefore, going to venture a text for this evening from Celsus: *"He will treat the disease properly whom the first origin of the cause has not deceived."*

Our present understanding of the pneumococcus dates from the work of Neufeld, who recognized in 1910 the existence of different immunologic or biologic strains of the organism. By this is meant that an animal inoculated with one strain of the organism develops antibodies which are specific for that strain but not for the other strains. The new field thus opened was diligently cultivated by Cole and others, and from it was reaped the first comprehensive account of the pneumococcus types as we know them today, as well as the first crop of serum treated cases of Type I lobar pneumonia in which the mortality was apparently reduced by about sixty per cent[1]. This was in 1917.

From the master pen of Osler there came at about this time the following passage: "Year by year the lesson of pneumonia is a lesson of humility. For purposes of comparison statistics are not available, but it is not likely that the great masters from Galen to Grisolle lost a larger number of cases than we do. Pneumonia has always been, as today, a dreaded and a fatal disease. For one thing let us be thankful. We have had the courage to abandon the expectorant mixtures, the depressants, the cardiac sedatives, blisters, the emetics, the resulsives, the purges, the poultices, and, to a great extent, the bleedings. Surely our forefathers must have killed some patients by the appalling ferocity of their treatment, or to have stood it the constitutions of those days must have been more robust. We still await, but await in hope, the work that will remove the reproach of the mortality bills in this disease. I say reproach because we really feel it, and yet act justly, for who made us responsible for its benign or malignant nature?"[2]

The literature of the past fifteen years raises a grave question as to whether we have actually had the courage to abandon the ferocious treatments of our forefathers. Rather, it may be suspected, we have substituted for them serum therapy, chemotherapy, inhalation therapy and physical therapy. Nevertheless, in the population at large, pneumonia continues to kill, each winter, with remarkable constancy.

*Read before the New England Physical Therapy Society, March 15, 1933.

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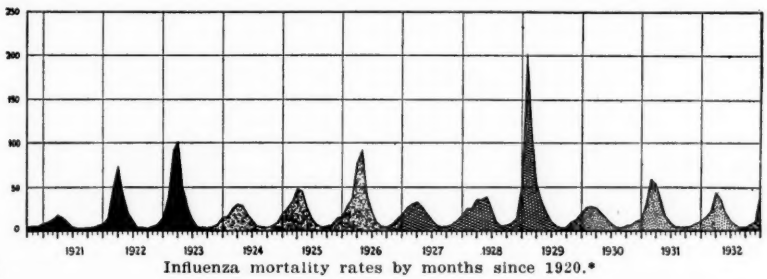
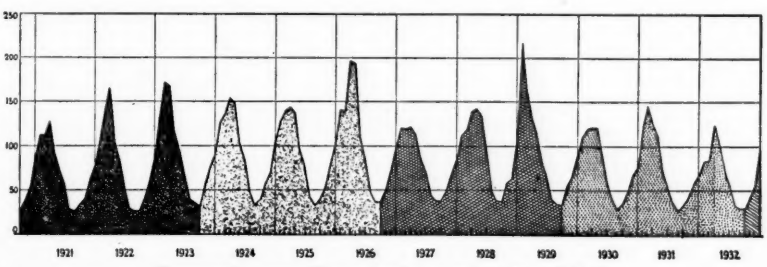
EPIDEMIOLOGY

Lobar pneumonia has each year an epidemic incidence, beginning late in the fall, reaching its peak in March, and subsiding in June. This corresponds so closely to the incidence of the common cold, that a correlation between these two types of respiratory infection is invited. A comparison of the mortality rates for influenza and pneumonia by months over a ten-year period shows that an unmistakable "influence" dominates both of these diseases, and, of course, raises the old question of "what is influenza?" A good, though evasive, answer is that influenza is a disease that merges on one hand into the group of common colds and on the other into the pneumonias.



Influenza mortality rates by months since 1920.*



Pneumonia mortality rates by months since 1920.*

Bacteriologic studies of the common cold give us some very suggestive leads. For example, a person whose basic nasopharyngeal flora is known, is exposed to a cold. Between thirty-six and forty-eight hours afterwards he develops the symptoms. There is at first no change in his basic flora, although he readily communicates the cold to others with whom he comes in contact. By the third or fourth day he ceases to be a source of contagion for the cold but begins to show increasing numbers of pneumococci in his nasopharyngeal flora. This has been repeatedly demonstrated in studies made in various isolated communities[3]. We may, therefore, accept the fact that the common cold in its later stages brings about great changes in the personnel of the nasopharyngeal flora, prominent among which are marked increases in the number of pneumococci present.

From this point we can turn to our clinical experience, that pneumococcus lobar pneumonia is very frequently preceded by an acute cold of a few days' duration. This at least explains the onset of the disease in some cases. There is also an increase in the number of pneumococci in the nose and throats of the population at large which closely corresponds to the seasonal incidence of pneumonia.

*Mortality experience of industrial policyholders—Metropolitan Life Insurance Company—reproduced by permission.

TREATMENT IN GENERAL

The implication of Celsus that he "will treat the disease properly whom the first origin of the cause has not deceived" is that some of us do not treat disease properly. Without mentioning names, most of us can recall immortals who "never lost a case of pneumonia". It is unfortunate that they have never made a bid for the Hall of Fame by publishing their secrets. So far as I know, the most successful method of treating pneumonia yet published is that of administering intravenous injections of sodium salicylate. Couvy and Popoff so treated 140 cases, 54 of which were said to have been of a very severe type with definite cardiac insufficiency, and they lost but seven, giving a case fatality rate of five per cent[4]! From five per cent upward, reduced mortality rates have been claimed for "natural bacterial antigens", "respiratory vaccines", quinine and quinine derivatives, carbon dioxide inhalations, oxygen inhalations, diathermy, serums, until one longs for the series of cases that will contrast the fatality rates for those who have been well nursed and cared for, against those who have received no orthodox care. Or, if it were not un-American, one might match a series of cases occurring among the well-to-do against another among those struggling for existence under poor hygienic surroundings. Of course, no self-respecting investigator will neglect to arrange a "control series".

It would also appear that anyone speaking of

the treatment of pneumonia would be derelict if he did not emphasize the importance of treatment *early* in the disease—thus: "Early diagnosis and the immediate institution of (carbon dioxide) treatment of pneumonia is imperative[5]." "Treatment with oxygen should be begun as soon as the diagnosis is established[6]." "It is, therefore, plain in what high degree the results depend upon the earliest possible initiation of the quinine treatment[7]." "The fact should be most strongly emphasized that the earlier the (serum) treatment is begun the more prompt and favorable are the results[8]."

I cannot refrain from adding to these excerpts a sentence from the 1914 edition of Osler's Principles and Practice: "The experience of many physicians in different lands has shown that pneumonia runs its course in a definite time, terminating sometimes spontaneously on the third day, or continuing until the tenth or twelfth."

SERUM TREATMENT

If, according to our text, we must not be deceived by the "first origin of the cause" of pneumonia, we should turn now to a consideration of the pneumococci. Biologically; two-thirds of these organisms are of three types, called Types I, II and III. The remaining third embrace twenty-nine types, numbered IV to XXXII, and for convenience are included in the classification as Group IV. When animals are inoculated with any of these types of pneumococci they produce in their blood serum agglutinins, precipitins and other protective substances that are highly specific for the particular type with which they are inoculated. A pneumonia patient infected by any type of pneumoccus develops these same specific immune bodies in his blood serum as he recovers from the disease and they persist for some time thereafter. Horses may be made to produce a serum of which a very small volume will protect mice against many thousands of lethal doses of the homologous pneumococcus. Such serum, when injected into patients, provides artificially in their veins the same specific immune bodies that they themselves will manufacture when and if they recover. There is, then, an antigen-antibody relationship between each type of pneumococcus and its homologous serum.

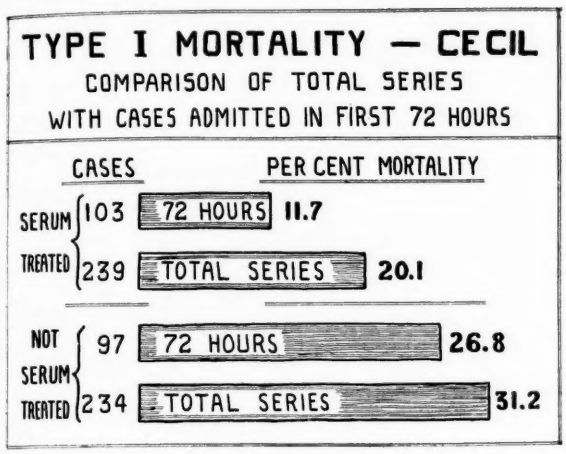
The existence of so many types makes it essential that we know with what type of pneumococcus we are dealing in each individual case. Otherwise we cannot expect to artificially reproduce in the individual case the specific antigen-antibody proportions which the patient himself is striving to establish, any more than diphtheria can be successfully treated with tetanus antitoxin. The very words, *antigen-antibody*, suggest, moreover, that our mechanism with pneumonia serum is incomplete in comparison with the toxin-antitoxin mechanisms of some other sera. This, however, does not alter the fact that so far as our knowledge goes we are dealing with "the first origin of the cause."

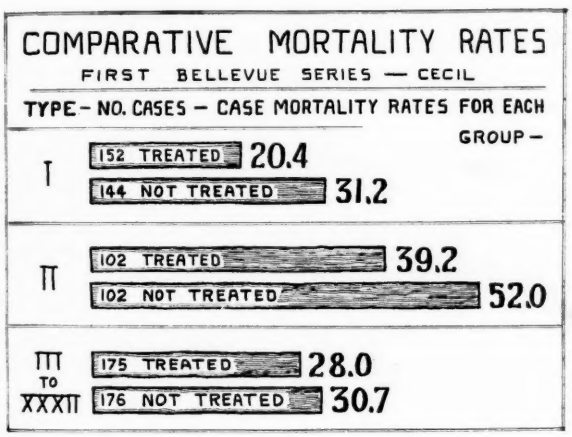
So far, effective therapeutic sera have been devised only against certain types of pneumococci. Type I, to a smaller degree, Type II, and certain lesser types in the Group IV classification, have yielded encouraging results. For practical purposes the immune bodies for Types I and II are usually concentrated into a bivalent serum. The incidence of these two types accounts for approximately one half of the cases of pneumococcus lobar pneumonia. The therapeutic results of serum treatment in these two types of pneumonia have varied with the various circumstances under which different series of observations have been made. But they are all in general agreement that the serum treatment is of distinct value in Type I pneumonias, while the Type II cases are helped to a lesser degree.

One of the most conservative sets of figures, as well as the most convincing, is found in the studies of the Bellevue Hospital in New York. I would like to quote from a recent paper by Cecil, from which I also took the data for the next two slides: "In our investigations at Bellevue Hospital with Felton's serum the alternate case method was used, that is, every patient diagnosed as having lobar pneumonia was given a number. The patients with even numbers received serum. Those with odd numbers served as controls. This method of selecting patients for treatment produced comparative groups that were surprisingly similar in all essential respects. In the first 851 cases treated it seemed desirable to give Felton's serum to *all* types of pneumonia, in order to eliminate the possibility that the effect obtained was non-specific rather than specific in its nature. By giving serum to Type III and Group IV pneumonias we had a control on Type I and Type II cases which were being treated with a highly specific product. At the end of this series it was clear that the serum was having no beneficial effect except in the Type I and Type II groups[9]."

Comparing these data, serum treatment, taking the cases as they came, reduced the fatality of Type I pneumonia thirty-five per cent (from 31.2 to 20.4); reduced the fatality of Type II pneumonia twenty-five per cent (52.0 to 39.2) and the fatality of the other types five per cent (from 30.7 to 28.0). Serum treatment within the first three days of the disease reduced the fatality of all the serum treated Type I cases forty-two per cent (from 20.1 to 11.7); reduced the fatality of the untreated Type I cases admitted within the first three days of the disease fifty-six per cent (from 26.8 to 11.7) and that of all the untreated Type I cases in the total series sixty-two per cent (from 31.2 to 11.7).

Anent the emphasis placed on the importance of early therapy in pneumonia by the exponents of every variety of treatment, it is of interest to note the reduction of mortality of fourteen per cent (from 31.2 to 26.8) in the untreated Type I cases admitted within the first three days of the disease. This is a pitfall to be avoided





by anyone who undertakes to appraise his methods—be he serologist, physicist or chemist. The physiologist should not need to be warned on this score.

In our zeal to take advantage of early therapy in pneumonia, we must first be clinically sure of the diagnosis. Every practitioner knows the frequency with which he suspects the disease only to find out within twenty-four hours that all is well. Some of these cases are undoubtedly instances of "abortive" pneumonia, but they cannot be fairly included in the records of any series on which conclusions are to be drawn. There must be either physical or x-ray evidence of solidification in the lung. Drs. Sutliff and Finland, whose experience with serum treatment at the City Hospital is now probably greater than that of anyone else in New England, tell me that two-thirds of their cases of Types I and II pneumonia treated within the first ninety-six hours are *well* within thirty-six hours of treatment. So far as I am aware no such claim can be made for any other or combination of other forms of treatment.

To be sure, serum is not an antitoxin, or an insulin, or yet a liver substance. Nevertheless, it must be considered the nearest approach to such specific remedies. It is applicable to at least one-half of the cases of pneumococcus lobar pneumonia. It is based upon a scientific knowledge of the "first origin of the cause", and for that reason let us not allow it to deceive us.

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Discussion*

Dr. W. E. Preble: *Mr. Chairman and Members of the Society*—I want to express my appreciation of the very able manner in which Dr. O'Hara and Dr. Price have handled their respective subjects. I would call attention, however, to the fact that even under the most favorable conditions there is a large percentage of the total number of cases of pneumonia which could not have the benefit of either of these methods of treatment. According to Rosenau, Types I and II comprise 64 per cent of the total number of cases of lobar pneumonia. This leaves 36 per cent which are not amenable to the specific treatment. Of the 64 per cent of Types I and II, I doubt very much if it would be possible to make the specific treatment available to one-third of them. Many cases do not call the physician in the first 72 hours, some it is difficult to type because of lack of sputum, and in many localities it is difficult or impossible to get the Felton's solution, so that, in my opinion, probably not more than 25 per cent, at most, of the Types I and II cases would be able to avail themselves of this treatment. In regard to diathermy, if Dr. Price's treatment is carried out as he describes with the application of diathermy, the hot oven baking,

*Includes a paper read at this meeting by Dr. Byron S. Price, not submitted for publication.

and the warm tub bath, this treatment would be available only to patients in the well-equipped hospitals. There remains, therefore, probably 75 per cent or more of the total cases of lobar pneumonia who could not avail themselves of either of these methods of treatment.

I propose to discuss briefly some of the quasi specifics and other methods of treatment that are considered by leading authorities to be of benefit to the pneumonia patient. As far back as the influenza epidemic in 1918, glucose was used intravenously for pneumonia. Recently there has been considerable discussion in the literature regarding this method of treatment. Two hundred cubic centimeters of a 12½ per cent solution of glucose are given intravenously every four hours. It is assumed that as the heart muscle ordinarily uses a large amount of glycogen, the glucose, from which it is formed, would tide the heart over when normal metabolism is interfered with by excess of toxins in the blood and by the extra amount of work thrown on the heart. Although this method of treatment is advocated by several authorities, I have seen no sufficiently large series of cases reported to convince me that it is of unusual value.

Many dyes have been advocated for intravenous use in pneumonia and other septic conditions. Mercurochrome, methylene blue, gentian violet, acriflavin and others have their advocates, the idea being that as the dyes have specific affinity for certain organisms the metabolism of the organism is inhibited by the dye with benefit to the host. Here again I know of no large series of cases with proper controls that are convincing.

Certain drugs, as for instance, quinine, quinine and urea, ammonium chloride and many others, have been supposed to have specific, or near specific action. The German physicians are said to use quinine quite generally. It does not seem to be used so much in this country, and I have been unable to find any convincing proof of its specific action or value. It is now pretty generally conceded, I believe, that pneumococcus vaccines are of no value in the treatment of pneumonia, but recent work by several authorities—Lister, Cecil and Steffen, and others—seems to demonstrate that a certain degree of immunity may be conferred by their use.

The value of oxygen in the treatment of pneumonia has been debated for years, and recently there has been renewed discussion as to its value and as to the best manner of administration. The ideal way seems to be the oxygen room, in which the patient is placed, and the supply of air and oxygen automatically controlled. This method, of course, is feasible only in a well-equipped hospital. The next best method of administration is probably the oxygen tent. The patient's head is put into the tent and the supply of oxygen and air automatically regulated. There is one drawback to this form of administration. The tent and equipment, if purchased, costs $275 to $300. It may be rented, but the expense is $25 to $35 a day. In the period previous to November, 1929, it is possible that there were a large number of pneumonia patients who could afford this heavy expense, but in these days, at least judging from my own practice, it probably would be prohibitive. Oxygen may be given with a catheter introduced through the nose. This is probably the best inexpensive method. Some authorities contend that administration with an ordinary gas mouthpiece is useless because of the inability to get a sufficiently high oxygen concentration. I do not entirely agree with this, however, as I have repeatedly found that oxygen administered in this manner almost immediately does away with cyanosis and relieves the dyspnea. Even under the best conditions there is a question whether oxygen has any curative value but it may ease a patient over a stormy period.

The matter of cardiovascular stimulation is, again, debatable ground. Some authorities advise the moderate use of digitalis from the start. Other equally eminent authorities advise its use only with beginning signs of cardiac distress. Wyckoff and his associates treated 835 cases with proper controls. One-half of these cases were digitalized and the other half received no digitalis at all. It was their opinion that digitalis was of value only in about five per cent of the cases, these having either fibrillation or flutter. In fact, the mortality in the digitalized patients was slightly greater than in those who had no digitalis at all. In a personal conference with Dr. William H. Robey he told me that he prescribed full doses of digitalis for patients from middle age on, practically as a routine. Dr. Edwin A. Locke informed me that he did not believe in the use of it as a routine, but used it in cases showing signs of congestive heart failure and in cases with fibrillation or flutter. Strophanthus and strophanthin have their advocates but I have never dared to use them because it is well known that occasionally a patient dies suddenly following their intravenous use. Strychnine, camphor and caffein are of doubtful value. Camphor may be of use as a quick stimulant in cases of collapse and has many advocates. Alcohol is probably of use in cases of collapse as a quick reflex stimulant and also as an easily assimilable food. It is probable that patients who are addicted to its use should not have the supply cut off during an attack of pneumonia. Expectorants are of doubtful value. Sedatives are useful, in fact, I may say almost indispensable. Restlessness may be controlled with bromides, luminal, barbital, pantopon, and if necessary, morphine. Personally, I prefer the small doses of morphine to any of

the others. Cough should not be entirely eliminated as it is nature's method of removing the excess secretion from the lungs, but it should not be allowed to the extent that it annoys or tires the patient. Codeine in most cases is probably the preferable drug, but dionine, pantopon, and if necessary, morphine, may be used. Pleuritic pain may be controlled by heat or a tight binder, or by strapping, but morphine, again, is the best bet, in my opinion. So far as I know, no one questions the value of the cold bath and alcohol rub. Properly given it not only reduces temperature somewhat, but quiets the restless patient and may induce sleep. Cool fresh air is always advisable, but not the extremely cold air we thought was of so much benefit twenty years ago. The room should not be below 60 to 65, as a lower temperature may irritate the bronchi, induce coughing and tire the patient. Diet is not of any great importance in the ordinary case because the disease is of such short duration. Liquids and soft solids in rather small quantities, and given fairly frequently, are advisable. Plenty of fluids are indicated although it is not necessary to drown the patient. Two quarts of total fluids in the twenty-four hours are enough. The bowels should be watched carefully to avoid distressing distention, and diarrhea which weakens the patient.

In closing, I wish to call attention to some prophylactic measures. It is said that 56 per cent of all cases of lobar pneumonia are preceded by the common cold; hence, take care of the cold. Chilling of the body, fatigue, worry, loss of sleep and dissipation are all factors favorable for the development of pneumonia. Most of these factors are under our control, at least in normal times.

A ROOM-SIZED RESPIRATOR

BY PHILIP DRINKER, S.B.,† AND JAMES L. WILSON, M.D.†

WE wish to report the construction and use of a respirator in which the body of the machine is made so large that several patients can be treated at the same time and into which nurses and physicians can comfortably enter to care for the patient*.

The usual type of respirator has frequently been described, and results of its action on numerous patients reported. Briefly, it consists of an air-tight metal chamber in which a patient can be conveniently placed so that the head protrudes through a flat, soft, rubber collar which is attached to the front of the machine, and which fits comfortably around the neck. The patient's body, excepting the head, is completely enclosed within the machine. With a suitable suction pump and alternating valve arrangement, the pressure inside the chamber is varied rhythmically between atmospheric pressure and a partial vacuum. The pressure changes in turn act on the thorax and abdomen of the patient but not on the nose and throat, and the degree of pressure change and the rate of alternation can be varied at will. The net effect is that respiration is induced in a manner which seems to simulate normal respiration fairly accurately.

In the early development of the respirator, the most important consideration was necessarily the determination of the degree of pressure required to inflate the lungs of a helpless patient, and attention was directed primarily to such questions as whether positive, negative, or both positive and negative pressures were most efficient, the magnitude of pressure necessary to distend the thorax, and whether by such mechanically controlled respiration a nice and proper balance between oxygen supply and carbon-dioxide excretion could be maintained so that there would be no dangerous disturbance of the acid-base equilibrium. Considerable experimentation and actual experience with patients were necessary before these problems were solved and before it was determined that the machine could be easily controlled and would not be dangerous to use.

The next consideration in order of importance was the manner of placing the patient in a respirator quickly and without trauma. Before it was determined that relatively small pressure and negative pressure only were necessary to maintain adequate pulmonary ventilation, heavy molded rubber collars that had to be stretched by mechanical means were used and these were reinforced by rather complicated adjustable steel shutters. It was altogether a somewhat difficult procedure to place a patient in a respirator, this problem being finally met by the development of the sliding drawer method for introducing the patient into the machine and by the construction of soft, easily stretchable rubber collars, which were quite satisfactory with the relatively small negative pressure finally determined to be necessary.

The machine was subjected to its first extensive test in the poliomyelitis epidemic of 1930. With its use in that year under varying circumstances and under the control of many physicians, it became evident that although the machine maintained pulmonary ventilation efficiently in suitable cases and, as was all important, seemed dependable over long periods, the ordinary nursing care of the patient was necessarily neglected. The body of the patient, being

*The Thunberg "Barospirator," working on a different principle, will accommodate a doctor, nurse, and patient. See J. Indust. Hyg. 10: 7, 1928.

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enclosed in an air-tight compartment, was inaccessible except when the machine was open and its action stopped—a procedure dangerous and very distressing to most patients. In many cases even such elemental care as change in position and removal of excreta could not be given except by the well-coördinated action of a crew of assistants. Improvement in this respect was made by placing several small holes partially closed with small rubber collars along the sides of the machine. Attendants could insert their arms through these collars and thus work with the hands inside the machine without interrupting its action. Depending on the ingenuity of the attendant, whose task became more difficult the heavier the patient, it was possible to carry out many therapeutic procedures by the use of these arm holes; the patient's position could be changed, baths and enemas given, catheterization done, hyperdermoclyses and even intravenous infusions administered. However, these procedures could be carried out only with difficulty, usually required the services of several nurses, and were far from satisfactory. No dependable physical examination, especially of the heart and lungs, could be made; even when the machine was made practically soundless, auscultation of the lung was unsatisfactory. The difficulty in satisfactorily changing the position of the patient from side to side and in instituting postural drainage in patients with increased pulmonary secretions or with pharyngeal paralysis was serious. This was especially true in the case of heavy patients and those who, because of the acute muscle pain and tenderness frequently seen in poliomyelitis, objected strenuously to any but the most gentle handling. The importance of proper change in position in the prevention of pneumonia in poliomyelitis as well as in other conditions has been emphasized.

It was evident that if it were practicable to build a respirator with the body large enough for the doctor and nurse to enter and care for the patient, many advantages would result. Any nursing, therapeutic, or investigative procedure could then be carried out with little more difficulty than if the patient were in bed. Patients with sudden respiratory failure could be placed immediately in the respirator and could then be examined and studied deliberately and carefully while artificial respiration was being efficiently carried out. In cases of poliomyelitis necessitating prolonged use of artificial respiration, the patient could be given proper orthopedic care. Even operations could be performed. Incidentally, the possibility of thoracic surgery at constant or varying negative pressures could be considered. Furthermore, in a "respirator room" large enough for the entrance of attendants, arrangements could be made to care for several patients at the same time.

As the result of the 1931 epidemic of poliomyelitis it became evident that in future epidemics in large cities, it would be impossible to give satisfactory care to all the patients needing respirators. By satisfactory care we mean sufficiently prolonged treatment in a respirator for a patient with even moderate respiratory paralysis to have his respiratory muscles protected from fatigue, as one would protect the muscles of the leg. With a severe epidemic, even with a large number of respirators available, it is probable that so many patients would require aid at the same time that only the most serious cases could be treated and those for periods just long enough to tide them over the most severe stage of their illness.

From the point of view of heartless economics, the most severely paralyzed patients are often those least profitably treated, since their hope of ultimate recovery, to an extent enabling them to carry on a satisfactory existence, is least. It is impossible, however, to foretell accurately the ultimate extent of paralysis during the acute stage of the disease so that aid must be given when it seems most needed. It has been pointed out, however, that so far as theory and clinical observations on such a point can be relied upon, the greatest recovery from paralysis takes place if the muscles are given maximum rest, so that a patient with respiratory paralysis due to poliomyelitis should be given aid with the respirator as early, as continuously, and for as long a time as is possible. Patients with only partial paralysis of the respiratory muscles who can still breathe sufficiently well to carry on pulmonary ventilation adequately, probably benefit considerably by the rest that treatment in a respirator gives them.

The economic advantages of group treatment of paralyzed patients in a single large respirator stimulated us to the development of this "respirator room". The saving in cost of machines and of nursing cost as well as actual improvement in nursing care would be great. Experience has shown that in patients with paralysis of the respiratory muscles who are beyond the acute stage of the disease, a wide variation in the pressure used and in the rates of respiration can be made. In the case of children with respiratory paralysis who were sleeping in respirators, we have varied the pressure from 12 to 25 cm. and the rate from fourteen to thirty a minute without disturbing or even waking them. It would seem, therefore, entirely practicable to treat small groups of patients economically and satisfactorily in such room respirators even though they would all need to breathe at the same rate. It would seem most logical in times of epidemics to treat patients for a few days during their most acute stage in individual respirators and then to transfer them to the respirator room. The problem of transfer of patients from one machine to another over considerable distances can be easily solved by the use of relatively inexpensive and simple hand-manipulated machines.

The respirator room described was donated† in the spring of 1932 to the Children's Hospital in preparation for a possible epidemic of poliomyelitis in the summer. Although there were very few cases of the disease this last year, and there has been no necessity for the treatment of groups of cases, we have had the opportunity of using the machine under a variety of circumstances. One case of the Landry's type of poliomyelitis, two of lead encephalitis with respiratory paralysis, and several other cases of respiratory failure, including one newborn infant, have been treated in the respirator room. We have therefore had sufficient opportunity to put the machine to practical test, the longest continuous use being two weeks. Patients can be placed in the respirator room with greater speed than in the small machines. There has been no difficulty in maintaining respiratory rates varying from 10 per minute to 50, and at any pressures up to 35 cm. Auscultation of the lungs is not interfered with by extraneous noises of the machine, any nursing or therapeutic procedure can be carried out practically as easily as if the patient were in an ordinary bed, and x-rays can be taken.

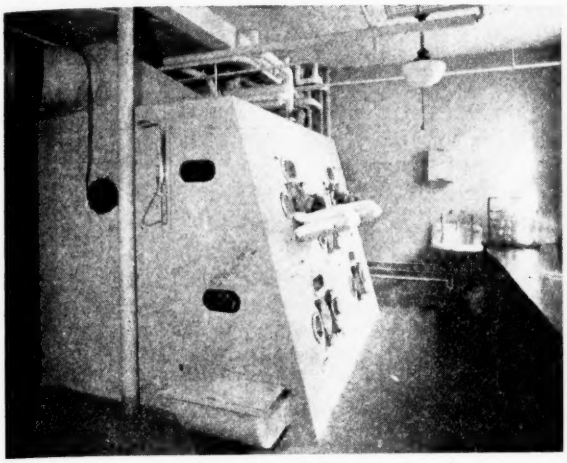

FIGURE 1.* Side view of respirator room showing children in upper pair of beds. Rheostat for controlling respiratory rate and pressure-indicating manometer shown on wall of room with pressure relief valve at lower right.

FIGURE 2. View inside through door to room. Note ample head room. Beds can be removed easily.

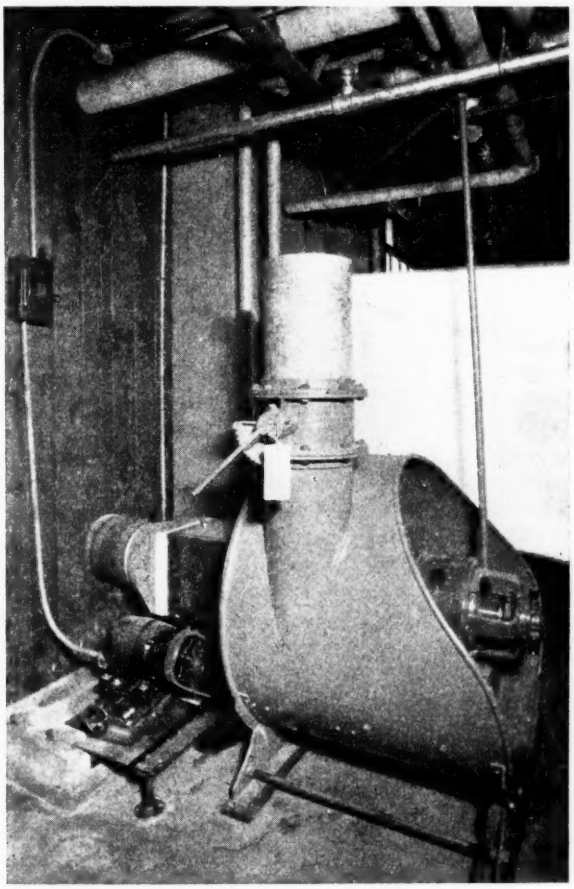

FIGURE 3. Blower and valve placed in basement room with other building equipment.

The respirator room (figs. 1 and 2) was built of steel plates welded *in situ* with the front slightly inclined from the vertical. The room was so constructed that four patients, in double tiers, could be cared for. In figure 1 two children are shown in the upper pair of beds, the head holes for the lower beds being closed off. The actual dimensions of this room were determined by the space available in the building where it was constructed. Smaller or larger machines could be constructed similarly without materially affecting either the cost of construction or of operation. There is no reason

†Built by Warren E Collins, Inc., Boston, Massachusetts.

*By Warren E. Collins, Inc. of Boston; and the Consolidated Gas Company of New York and its Affiliated Companies.

why a machine large enough to hold double the number of patients could not be constructed.

The beds are made with springs and equipped with mattresses similar except in size and shape to an ordinary bed. Any or all of the beds can be removed from the room to allow the greatest possible space for work, or a single bed can be adjusted in the middle of the room where a fifth head hole is available. Both the head and foot ends of each bed can be raised or lowered from inside or outside the room; the easy raising and lowering of the head end of the bed facilitates the adjustment of the patient in the machine and a proper fitting of the rubber collar when the patient's position is changed from back to side and vice versa. Raising the foot end of the bed allows proper postural drainage to be carried out,—a procedure especially important in preventing choking attacks and hypostatic pneumonia in patients with deglutition paralysis.

As can be seen, the room is constructed with a number of small windows to allow unobstructed views of the patients' bodies from the outside and of the patients' heads from the inside. Suitable electric lights are placed inside the room. Communication between people inside and outside the room can be made without raising the voice, by listening with a stethoscope applied to one of the celluloid windows. The door to the room is full sized and can be opened or locked shut easily from either inside or outside, and opens with only slight pressure if one's efforts are made to synchronize with the "expiratory phase" of the respiration. Since the area of the door is so great, it cannot be opened during the negative pressure phase, and a small emergency door is provided which can be forced open in case the alternator should accidentally stop during the negative phase, although the possibility of such an accident is remote.

The patient is carried into the room head first and the head inserted through the rubber collar to the outside by the aid of a single assistant in front of the respirator. The room is so large that leaks which would be sufficient to make ineffective the small-sized individual respirator are here so relatively small as to be unimportant and the action of the machine is effective as soon as the patient's head is passed through the collar, even before the collar is adjusted to the patient's neck. On entering the room and closing the door (whether properly locked or not), effective pressure changes immediately take place. A patient can thus be given effective artificial respiration more quickly than with the small machine.

Doctors and nurses inside the room are conscious of the changes in pressure only by sensations in the ear. The changes in pressure are too rapid to allow the pressure in the middle ear to follow that outside the ear drums, and sensations which result are somewhat disagreeable. Most persons, however, are not bothered and the objection has not proved serious. The sensation can be prevented by plugging the ears and is not felt during auscultation with a stethoscope. The room is quiet—the sound of the motor being heard only as a distant rumble, and percussion and auscultation can be carried out normally.

In figure 3 is shown the blower and valve arrangement by means of which any desired combination of pressures and breathing rates is obtainable. The exhaust pipe leading off the roof (fig. 1) to the blower is about 35 feet long, and is soundproofed in such a manner that the transmission of sound from the motor to the room is prevented. The blower itself is placed on the concrete floor in a basement room with various other mechanical equipment of the building. The blower is driven by a five horse power motor, and is a standard type of unit widely used in industry.

SUMMARY

A brief description, with illustrations, is given of a respirator room large enough to treat four patients at the same time. Physicians and nurses can enter the room and, without inconvenience to themselves, give the patient the same sort of nursing care he would have in an ordinary hospital bed. The inside of the room is so quiet during operation that there is no interference with percussion and auscultation.

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URINARY TRACT COMPLICATIONS FROM UTERINE CANCER*

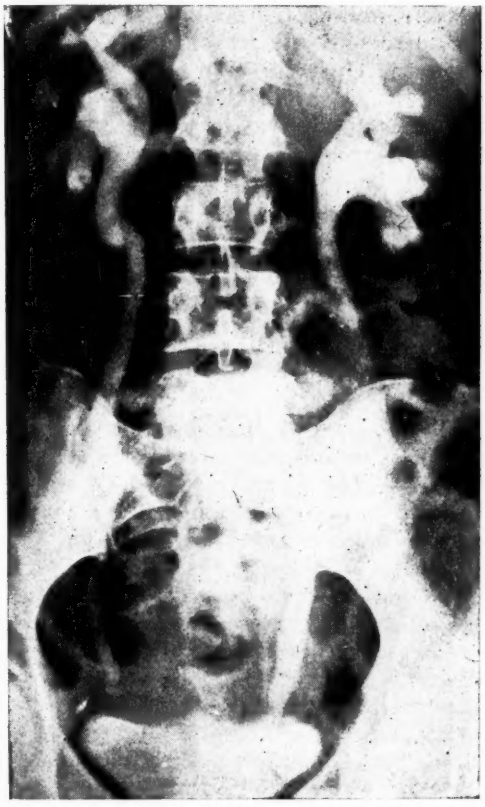
BY FLETCHER H. COLBY, M.D.†

COMPLICATIONS involving the urinary organs occur with considerable frequency in patients with uterine cancer. The use of radium in the treatment of this condition, through its immediate or late effects, unquestionably has increased the incidence of such complications. These facts are important since, in many instances, death is due to the marked disturbances which take place in the urinary tract.

In the study of 150 postmortem examinations of women dying from uterine cancer Faerber[1] found the bladder diseased by infection or tumor invasion in 88 or 58.7 per cent. The ureters showed dilatation, compression or infection in 84 or 56 per cent. The kidneys were affected in 108 or 72 per cent; there being hydronephrosis in 55, pyonephrosis in 14, pyelitis or pyelonephritis in 19, and renal or perirenal abscess in seven. A clinical study of 50 cases of advanced cancer of the cervix reported recently by other observers showed ulceration and infiltration of the bladder mucosa in 28 per cent, and ureteral obstruction and hydronephrosis in 48 per cent[2] . It is evident from these figures that the urinary tract is frequently diseased in uterine cancer and often to a severe degree.

Such changes result from direct extension of the tumor, by pressure of the growth on the lower portion of the ureters, by extension of infection or by radium necrosis. That the marked fibrosis which radium sometimes causes in tissues, without the association of tumor, does cause severe obstruction of the ureters is illustrated by a case reported by Schmitz[3]. A patient with adenocarcinoma of the cervical stump had received 3500 mgm. hours of radium, 12 years previously. Postmortem examination revealed an almost total obstruction of the rectum, total obstruction of the left ureter with an enormous hydro-ureter, and a partial obstruction of the right ureter with hydronephrosis. Serial microscopic sections of the pelvic tissues showed no cancer cells. In this instance the lesions were evidently due to progressive fibrosis resulting from the application of radium.

Bladder involvement from an anterior extension of the tumor is recognized sometimes at an early stage by the cystoscope before it is evident on vaginal examination. Circulatory changes in the bladder mucous membrane such as congestion or petechial hemorrhages suggest early tumor invasion. Actual tumor nodules may be seen through the cystoscope when there is no other definite evidence of such extension of the growth. Tumor invasion, not yet actually involving the mucous membrane of the bladder, is suggested by an elevation of the bladder base[4]. Such abnormalities are important since they sometimes modify the treatment and change the prognosis.



Intravenous pyelogram showing well-marked dilatation of the upper urinary tract in a case of carcinoma of the cervix.

The upper urinary tract can be definitely diseased without being suspected. This fact is worthy of mention and is not always recognized. In apparently favorable cases, sometimes the tumor has spread to such an extent that it surrounds and compresses the lower ends of the ureters. In such instances, visualization of the upper urinary tract by pyelography gives the only evidence of the progress the disease has made. The bladder itself often shows no sign of tumor invasion. Intravenous pyelography is an excellent method for this study of the upper urinary tract, and with the newer dyes the method has become very much simplified. The accompanying illustration demonstrates marked

*Read before the New England Gynecological and Obstetrical Society at the Massachusetts General Hospital, November 30, 1932.

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involvement of the ureters in a case of cervical cancer in which the condition was unsuspected from the routine examination of the patient. The abnormal pyelograms here shown changed the prognosis from favorable to unfavorable. The case is an example of the excellent visualization of the urinary tract obtained by intravenous medication.

Thirty-seven cases of uterine malignancy, from Dr. G. A. Leland's service at the Palmer Memorial Hospital, were studied to determine the condition of the urinary tract. Thirty-four of the cases were carcinoma of the cervix, two were carcinoma of the body of the uterus, and one was a case of recurrent leiomyosarcoma of the uterus. Thirty-five of these patients received radium treatment. In eight cases or 21.6 per cent there was cystoscopic evidence of tumor involvement of the bladder. Intravenous pyelograms showed the ureters partially or completely obstructed by tumor in 13 or 35.1 per cent of the cases. In several instances this degree of tumor invasion was not suspected from the usual examination. It is interesting that in not one of these 13 cases was there any elevation of the non-protein nitrogen of the blood, although kidney damage was severe in several of the patients. In only one instance in this series was the non-protein nitrogen above normal and this was in a patient suffering from the last stages of advanced cancer. The non-protein nitrogen determination, therefore, gives no measure of even severe kidney damage in these cases, and a normal figure is not to be regarded as an indication of undamaged kidneys. On the other hand, intravenous pyelography does give a graphic and more reliable estimation of renal function.

Bladder reactions following radiation are frequent. They vary from a mildly irritated mucous membrane to severe ulcerations and fistula formation. These reactions are said to be due to endarteritis and fibrosis with a loss of nutrition to the affected part, resulting in the formation of a local or trophic ulcer[5]. Such symptoms are many times severe and often require months or even years to heal. The most severe reactions are said to occur following radiation of cancer of the cervical stump where the absence of the uterus fails to provide adequate protection to the bladder[6]. In such cases it is probably unwise to employ large doses of radium. Severe complications following radiation appeared to be most frequent in those cases which had been radiated upon several occasions. Thus, of nine cases which had received two separate doses of radium, fistulae developed in four or 44 per cent. This may have been due in part, at least, to the extent of the disease and tumor invasion of the bladder. However, it might be better to use smaller doses of radium in such cases or, possibly, no further radiation. Bladder symptoms following radiation were present in 17 or nearly 50 per cent of the 35 cases radiated. These symptoms were severe in 12 or 29.1 per cent and mild in five or 14.2 per cent. Since eight of the patients were not followed sufficiently long to know whether bladder symptoms developed or not, it is possible that as high as 75 per cent had some symptoms, and that in 50 per cent they were fairly severe. Fistulae, vesicovaginal or rectovaginal, resulted in seven or 20 per cent.

Reactions in the bladder after radiation have often been called "radium burns." Since the word burn may be synonymous with carelessness to the laity, and legal complications result, the term is a poor one. Some other designation is advisable in hospital records and when the condition is discussed. Such reactions characteristically appear at a long interval after radiation. At the Huntington Hospital, bladder symptoms made their appearance in 12 such cases at an average of 18 months after radiation, and in one instance as late as six years after radium application[7]. The differentiation of malignant disease and necrosis of the bladder wall from radium is sometimes difficult, particularly when there is a long interval between radiation and the first symptoms. As a rule, however, these reactions have certain features, as viewed through the cystoscope, which are characteristic to the trained observer.

In the less severe reactions some comfort is afforded the patient by mild warm bladder irrigations through removal of sloughing tissue, lessening infection and preventing the formation of calcareous deposits or actual stone formation. If the bladder is invaded by tumor or its wall is perforated by a fistula, severe symptoms can be relieved by various operations such as transplantation of the ureters to the large bowel, ureterostomy, or obliteration of the vagina. It is a well-recognized fact that surgical attempts to close such fistulae are usually unsuccessful.

The high incidence of urinary tract complications in uterine malignancy makes it advisable that such cases be studied from this point of view. Recognition of the fact that the urinary organs are already involved by the tumor may alter the prognosis and radically change the treatment.

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ERYTHEMA NODOSUM-LIKE LESIONS IN CHRONIC ULCERATIVE COLITIS

Report of Case

BY P. A. BROOKE, M.D.*

WHEN an article on chronic ulcerative colitis appears, the complications of the disease are seldom mentioned. The author of this paper in reviewing the subject matter relative to ulcerative conditions of the colon could find only two articles that mentioned skin lesions, in connection with ulcerative colitis. During the past year the writer has had several cases of this disease, and this paper is written to describe a case in which an unusual skin condition appeared when the patient was suffering from an acute exacerbation from this chronic debilitating disease.

REPORT of CASE—A young woman 23 years of age, of Jewish extraction, eighteen months before entrance to the Worcester City Hospital on January 24, 1932, began to have many stools a day containing blood and mucus, accompanied by abdominal cramps and pains in the joints of her feet, ankles and hands. Her doctor told her that she had hemorrhoids and a hemorrhoidectomy was done one year later at a Springfield hospital. Two or three days after the operation she had a recurrence of the bloody diarrhea, abdominal cramps and pains in the joints. At the time of discharge from the hospital she had eight or nine movements a day. She lost ten pounds in weight. She returned to the hospital and remained there for three weeks, at the end of which time she was having two or three movements a day. The case was diagnosed as acute colitis. The improvement in her condition lasted for about three months. While on her wedding trip, she began to have three to five movements a day, containing considerable blood. It was quite noticeable to her that every time she had a recurrence of the diarrhea her joints became painful.

On December 1, 1931, she entered a New Haven hospital because of diarrhea, sweating and loss of weight. The diagnosis was non-specific ulcerative colitis, probably psychogenic, and a question of hyperthyroidism.

On January 22, 1932, the patient was seen by the writer for the first time, at her home. She was complaining of bloody diarrhea, sore throat and pains in the joints of her shoulders, hands, ankles and feet. The temperature at that time was 100.4° F. and she was having six to seven movements a day. Two days later she was admitted to the Worcester City Hospital. On the day of admission the patient was complaining of pain in the left leg on the anterior tibial surface about one inch above the ankle joint. Her temperature was 99.8° F. The next morning the temperature rose to 101° F. and she complained of pain in both legs. She was having about six to seven movements a day, containing blood and mucus.

Physical Examination—The physical examination was negative except for the following: Proctoscopy revealed marked involvement of the rectum and lower sigmoid. In the rectal ampulla there were many large ulcers with necrotic tissue at their bases and also many smaller ulcers which were hemorrhagic. There was much granulation tissue present. In the upper rectum the mucosa was considerably scarred and contracted, and the lumen was somewhat narrowed.

Material was obtained from one of these bleeding ulcers and cultured in glucose bouillon for twelve hours, then transferred to blood agar. After twenty-four hours colonies showed hemolysis, and gram-positive diplococci were found. The material was negative for amoeba.

Examination of various parts of the body revealed areas about the size of a cent, reddened and slightly edematous, tender to touch, raised, but with no definite edge. These papular areas were most marked on the anterior tibial surfaces of both legs. Two days later the same kind of lesions appeared on the dorsal surfaces of both arms, first on the left arm and then on the right; the areas on the legs in the meantime enlarging almost to the size of a silver dollar, and changing to deep red, then purplish, and finally a bluish color, with the center of each raised area becoming soft and fluctuant. The same metamorphosis occurred in the spots on the arms.

FIGURE 1. Barium enema showing ulcerative colitis.

Dr. G. A. Dix saw the patient in consultation and agreed that the skin lesion was erythema nodosum. There was also swelling of the tissues around the ankles, elbows, and metacarpophalangeal joints of both index fingers. These areas were very painful to touch.

A puncture was made into two of these fluctuant masses and a thick, sticky, creamy substance was obtained. This material was cultured in the same way as the material from the rectal ulcer and after 72 hours an organism was discovered that appeared to be morphologically the same as that found in the rectum.

X-ray Report: Enema enters readily to and beyond the ileocecal valve. There is very little evidence of haustration in the entire colon. The proximal portion is dilated, the ascending being 7 cm. in diameter. Evacuation is very imperfect; no diverticula are shown and no filling defects. Diagnosis: ulcerative colitis. (Fig. 1.)

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Treatment: A high vitamin and low roughage diet was prescribed. Daily colonic irrigations of potassium permanganate 1-8000 were tried for the first two weeks but apparently did the patient more harm than good in that they stirred her up considerably. The usual drugs were used, namely iodine and water, calcium lactate, bismuth subcarbonate, and parathyroid extract. Yatren in half gram doses, three times a day, for six days was tried on the suspicion that an amoebic infection might have been present at the onset of her illness, although the stools and the material taken from the ulcers were repeatedly negative.

Progress: The patient ran a fever ranging from 99.8°F. to 102°F. reaching normal on the eighteenth day after entrance. On the day when the temperature was at its height the patient was having nine movements a day. There was considerable blood in the stools. Stools were negative for amoeba. The Widal test was negative. The white blood count was 17,200; the red blood count 3,600,000; the hemoglobin 70%. The urine showed s.p.t. of albumin and there were a few granular casts in the sediment. Improvement was at first indicated by a decrease in the number of daily movements. This was followed in two days by a fall in temperature, and at the same time relief from pain and swelling in the joints. On the day when the temperature fell to 98.2°F. she was having only three movements a day and they were free from blood. The skin lesions began to clear up and at the time of the patient's discharge from the hospital, healing in the sloughed-out areas was noticed. The nodes that did not break down disappeared quite rapidly after the bowel movements decreased and the temperature returned to normal. The patient was discharged after a stay in the hospital of twenty-seven days.

She did fairly well at home for about two weeks. She received daily injections of an autogenous vaccine made from material obtained from the skin lesion nodes. The initial dose was 0.2 cc. This was increased daily until the patient was receiving 1 cc. The diet was the same as that which she had while in the hospital. After she had been at home for two weeks the bloody diarrhea returned and the temperature began to rise again, reaching 101.6°F. as a maximum. Other crops of nodes were noticed on the legs and arms, and one on the right temple. The lesion that occurred on the right leg at mid tibia grew very rapidly and soon involved the greater part of the right anterior surface of this member. The skin that covered this involved area became very shiny and tense, and broke down in the center. Several other drainage points appeared in the course of a few days so that the surface of the involved leg was honey-combed in appearance, and in the course of another week, the whole area had sloughed, leaving a large, ulcerated area. Material obtained from this lesion contained the same organism as the original node. Only two other masses broke down this time, one on the right temple and one on the lateral surface of the right arm in its upper third. The pain and swelling in the joints returned but were not so troublesome as before.

Owing to the emaciated appearance of the patient and the secondary anemia that had developed, it was necessary for her to return to the hospital. She was readmitted on March 17, 1932. On the day of admission the red blood count was 2,900,000 and the hemoglobin 45%. The next day she received 500 cc. of citrated blood. The diet was high vitamin and low roughage. A marked improvement was noticed in a few days. The patient's general condition improved steadily, and with this improvement the number of stools decreased and the visible blood disappeared. The most distressing thing from this time on was the ulceration on the leg, but by the time she was discharged from the hospital the base of the ulcer was clean, and healthy granulations could be seen. The local treatment for the ulcerated area was hot saline dressings. The patient returned to her home in Springfield, Mass. after a stay in the hospital of twenty-two days. At the time of discharge she was having only two stools a day. The red blood count was 3,900,000 and the hemoglobin 65%. She reported by letter every two or three weeks that her progress was fairly constant. Small amounts of blood could be seen in the stools occasionally, while the number of stools varied from one to four each day. She came to Worcester about the first of June, 1932. She was feeling quite well; the ulcer on her leg was still open, but looked clean and many granulated areas could be seen. The last visit she made here was in September, 1932, when the ulcer on the leg had entirely healed. Her weight was 112 pounds, a gain of 14 pounds since her second admission to the hospital.

She reports at the present time that she is feeling quite well and has started housekeeping and enjoys the work very much. The number of stools varies from one to three a day with a few streaks of blood appearing occasionally.

DISCUSSION

Without doubt this patient was, and is, afflicted with chronic ulcerative colitis. Although she had been operated on for hemorrhoids it is evident that her initial bleeding was due to colitis. The fact that the case presented symptoms of headache, sore throat, painful joints and fever does not require any additional diagnosis, for ulcerative colitis may present all of these symptoms, as was true in this case every time an exacerbation occurred. The appearance of the skin lesion, erythema nodosum, was confusing. It appeared for a time that she had acute rheumatic fever, but later developments ruled out this condition. The breaking down of the nodes and the finding of a gram-positive diplococcus in pure culture were unusual. Bargen[1] mentions the fact that erythema nodosum is occasionally found as a complication of chronic ulcerative colitis. This fact suggested the possibility that the organism found in the node might be the same as that found in the base of the ulcer in the rectum. Morphologically, culturally and serologically the organism appeared to be the same, but in the fermentative sugar tests the reactions of the organisms were different. Brunsting[2], Goeckerman, and O'Leary in their article on pyoderma gangrenosum discovered gram-positive cocci in diplococcal arrangement at the base of ulcers of the abdominal wall in one of their cases of chronic ulcerative colitis. The ulceration that occurred on the right leg of this patient extended from the upper third of the tibia to about one inch above the ankle joint, was identical with the ulcerations described by these authors and the cocci found probably were the same.

After obtaining the diplococcus from the rectum an attempt was made to identify it with

the so-called Bargen diplococcus. Morphologically the organism appeared to be the same as described by Bargen[3], but the sugar fermentation test gave results different from those described by him. However, the heat resistance test was not carried out. It seems quite possible that the diplococci found were of the entero-group arranged in diplococcal formation. It does not seem likely that the patient had rheumatic fever concomitantly with chronic ulcerative colitis. As mentioned before, ulcerative colitis during its acute stage or during an acute exacerbation in its chronic form can be ushered in as any acute illness. The reaction in the joints can be a part of this disease as it is in rheumatic fever. The inflammation in the joints could easily be an anaphylactic response. It was quite noticeable that the pain and swelling in the joints disappeared as the general health of the patient improved, and the irritative symptoms in the colon subsided. The same can be said of the broken down nodes, namely, that healing was noted as the bowel movements and blood in the movements became less, and the general health improved. The cutaneous lesions, especially the one in the right leg, can be considered the result of the infectious condition in the colon, which produced marked constitutional debility rather than being an accompaniment of rheumatic fever.

SUMMARY

1. Acute ulcerative colitis as well as acute exacerbations of chronic ulcerative colitis may have the early symptomatology of any other acute illness and may be confused with it.
2. Erythema nodosum is a complication of chronic ulcerative colitis.
3. The ulcerated skin lesion is regarded as a cutaneous manifestation of some underlying infectious condition.
4. It might be suggested that erythema nodosum is simply an early stage of pyoderma gangrenosa. The severity and chronicity of the underlying infection determine whether the erythema nodosum lesion disappears or breaks down with ulceration. That is, erythema nodosum in the acute diseases disappears; in the chronic debilitating diseases it is prone to ulcerate.

I wish to thank Dr. R. P. Watkins for referring this case to me, and Dr. Raymond H. Goodale for the laboratory work.

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PRIMARY TORSION OF THE GREAT OMENTUM

BY LYMAN ALLEN, M.D.*

PRIMARY torsion of the great omentum appears to be a rather rare condition and therefore even single cases are worth reporting, since I can find records of only 41 in the literature.

H. G., 30, married, no children, entered the Mary Fletcher Hospital on March 21, 1928, with the diagnosis of chronic appendicitis.

F.H.—negative save for history of tuberculosis on his mother's side.

P.H.—negative.

P.I.—about January 1, 1928, while storing ice, he had attacks of "indigestion" at various times, usually coming on right after eating. Pain general throughout abdomen and sharp enough to "cramp him up". He has had considerable gas and belching for a year or so, but no nausea or vomiting. March 16, he had another attack but felt well the next day. However, soreness developed in the right iliac region and he could not extend his right thigh or walk without pain. Since then he has had a steady ache in his right iliac region and some in his epigastrium. Says he cannot digest meat comfortably. Appetite fair. Bowels regular. Occasionally takes salts. Bowels moved well this morning. Urination N-1/D-4 or 5—normal. Sleeps well; no loss of weight.

W.D. and N. Limped into hospital; can't stand erect; head, neck, and chest negative. Abdomen—slight fullness in right iliac region with moderate rigidity. Tender at McBurney's point and more tender at a point about ½" above and to the right of the umbilicus. Tender over eleventh dorsal nerve. T. 98.2°, P. 90, R. 24. Leucocytes 11,600; polys 80 per cent; lymphocytes 17; large mononuclears 2 per cent; eosinophiles 1 per cent.

At operation, tissue of abdominal wall appeared slightly edematous; purple, nearly gangrenous omentum presented; this was twisted upon its long axis several times, cutting off its blood supply; the appendix was small with extremely fat meso-appendix, and dilated base; the twisted omentum was adherent in the right iliac fossa to the posterolateral wall by very slight adhesions which were evidently recent, and separated easily. Appendix and two pieces of nearly gangrenous omentum removed; belly closed tight.

He had a little more vomiting than usual for two or three days, and some temperature, up to 100 degrees, for a week. His bowels moved well on the third day and the wound healed per primam. Home on fifteenth day p.o.

Although certain parts of this history and examination are not typical of recurrent (or chronic) appendicitis, still in view of the frequency of appendicitis and the rarity of torsion of the great omentum, I feel that the mistaken diagnosis was the one which would be made as a rule.

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ULCERATION OF THE DUODENUM FROM ACTINOMYCOTIC INFECTION*

BY LOUIS RABINOWITZ, M.D.†

THE following case is that of actinomycosis of the pleura, lung and duodenum, resulting in a patent sinus from the duodenum through the thoracic wall, and connected with the lungs through an empyemic cavity.

CASE REPORT

M. A. A., a white married woman, aged 21 years, entered the Waltham Hospital May 29, 1932, complaining of being "weak and short of breath" for the past five months. She had been transferred from the Middlesex Tuberculosis Sanatorium having reported there because of marked weakness, weight loss of 22 pounds in past year, an irritative and non-productive cough, and a great deal of pain in her right chest and back. A swelling in her right flank was opened and the material obtained, histologically, showed typical lesions of actinomycosis. No parasites of actinomycosis or tubercle bacilli were found in the sputa.

The patient's childhood had not been significant. She had been a weaver and winder in a silk factory until her marriage at 19 years of age. A miscarriage occurred four months later. From July, 1930 to October, 1931, the patient had her abdomen and right flank incised and drained five times.

On admission, physical examination disclosed a thin, poorly developed white female with three small sinuses on the posterior inferior portion of the right chest and two abdominal postoperative scars. Physical and laboratory examinations of the chest suggested a thickened pleura on the right with some consolidation and effusion on the left.

While at the hospital, the patient complained of severe pain in her chest and back. Besides symptomatic treatment, she was given potassium iodide by mouth and rectum, sodium iodide intravenously, and her sinuses were swabbed with iodine tincture. The temperature was of the "picket-fence" type at a 100°F. average level, the white blood cell count remained at 15,000, and a profuse purulent discharge was noted from the remaining sinus. Recheck examinations pointed to increased consolidation of both lungs.

About two months after entry, food eaten the day before, such as carrots, beans, and blueberries, were found in the discharge from the sinus. Four months after entry, iodized oil, a barium meal and interval roentgenograms showed a passage extending into the posterior portion of the pleural cavity and downward into the peritoneal cavity and the duodenum, and also that some extension was present in the left chest. Three samples withdrawn from the lowest portion of the sinus contained total acids in all, and free Hcl in one. The patient gradually grew weaker and died November 1, 1932, about five months after entry.

An autopsy was performed one and three-quarters hours after death which showed a sinus opening between the seventh and eighth ribs in the posterior axillary line on the right. In the chest both pleural cavities contained dense adhesions which began at the apex and extended down to the diaphragm. Cavities on both sides contained together 700 cc. of purulent material. That on the right communicated freely with the sinus in the chest wall and extended downward behind the intrenchment of the diaphragm to the duodenum, and entered the duodenum. The communication was open and about 4 mm. in diameter. The duodenum was tremendously dilated and adherent to the under surface of the liver edge. The lungs showed areas of consolidation, particularly the left lower lobe. Microscopic examination showed extensive necrosis. The anatomic findings were as follows: (1) sinus, from right pleural abscess cavity to duodenum and chest wall, (2) congestion, passive, of the liver, (3) degeneration of the myocardium. The microscopic findings were (1) chronic suppurative inflammation of the pleura, (2) chronic interstitial pneumonitis, (3) toxic myocarditis. The primary fatal lesion was concluded to be actinomycosis of the right pleural cavity with extension into the duodenum and right lung.

COMMENTS

In the 670 cases of actinomycosis collected in this country by Sanford and Voelker in 1925, the 14 proved cases of Kirklin and Hefke, and 50 cases of actinomycosis involving the thorax reported in the literature since 1910, exclusive of the United States cases, no ulceration of the duodenum was ever noted.

SUMMARY

There is reported here an apparently rare case of actinomycosis of the right pleural cavity with extension into the duodenum and right lung.

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NOTE: Indebtedness is due the following staff members for the use of their reports on this case: (Medicine) Dr. Bongiorno and Dr. Perlmutter; (Roentgenology) Dr. Dascombe; (Pathology) Dr. Dalrymple.

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MENSTRUAL PAIN AMONG INDUSTRIAL WOMEN

BY MARY R. LAKEMAN, M.D.†

THIS study represents an inquiry into the association of pain with menstruation among 365 women and girls employed in several industrial plants.

The writer, becoming interested in the problem of dysmenorrhoea through association with students entering a teachers' college, made this inquiry in an effort to discover whether dysmenorrhoea is more or less common among employed girls than among students of similar age.

A thousand copies of a questionnaire* were distributed among employed women in five electrical outfitting factories and in two textile mills, through the courtesy of the management, personnel directors, and nurses.

Three hundred and sixty-five of the questionnaires were returned with satisfactory replies. Of the 365 girls, 327, or 89.6 per cent, stated that they had pain at some time, and in some degree, during the menstrual period. Of these, 176 had pain "always" and 151 reported pain "occasionally".

AGE

In age, 146 were under 21 and 218 were 21 or over (one not stated). A division of the replies by age groups failed to show any significant difference between the older and the younger women. One hundred and thirty-one of those under 21 and 196 of those over 21 answered in the affirmative.

MARITAL STATUS

Two hundred and sixty-one of the women were unmarried, 72 were married, and 23 were widowed or divorced. The marital status seemed to have little bearing on the presence or absence of pain.

WORK HABITS

An attempt was made to learn whether the menstrual experience was affected by the customary habits as to physical activity and positions assumed while at work. No significant difference was brought out in the replies given by those women who said that they sat or stood continuously and those who stated that they moved about during the working day.

DEGREE AND DURATION OF PAIN

Of the 327 girls who stated that they had pain, 46 were accustomed to lie down for one to three hours during each period, while 18 ordinarily lost a whole day each month. Among these 327 girls who stated that they had pain either "always" or "occasionally", 201 said the pain lasted one day or less, 72 said that the pain lasted two days, 36 said that the pain lasted more than two days, and nine did not reply.

One hundred and thirty-eight considered their pain to be "slight" while 38 regarded theirs as "severe".

HEADACHE

Two hundred and two of the total number (365) reported headache as occurring "often" or "occasionally" accompanying the period. As might be expected, the largest number (123) was found among those reporting pain "always", while 67 who had headache were among those reporting pain "occasionally". Only twelve mentioned headache as a leading symptom of the menstrual epoch.

NAUSEA

Forty-four of the 327 reporting some pain stated that nausea occurred "often". Seventy-seven reported nausea "occasionally". Among those reporting "no pain" nausea was not mentioned.

OTHER STUDIES

While the number of individuals from whom the above information was obtained is far too small to furnish a basis for definite conclusions, and while, moreover, the accuracy of some of the replies may well be questioned, it is nevertheless of interest to note the statements of these 365 girls in industry in comparison with replies to similar questions made by school and college students of a slightly younger average age.

In contrast to the 89.6 per cent of these industrial girls who stated that they have pain "occasionally" or "always," Dr. Alice Sanderson Clow[1], an English physician, who questioned 2050 healthy girl students, ranging in age from twelve to twenty-two, over a period of five years, reported 22 per cent replying that they had menstrual pain either "slight", "subacute", or "disabling". Dr. Sanderson Clow mentions that among the first 734 of the girls questioned in her study a much higher rate (46.7 per cent) was found than among those questioned during the latter part of the five-year period. In two of the later groups the number reporting pain represented only 10.8 per cent and 5.6 per cent, respectively. The chief cause to which she attributes this marked decrease is the fact that the school régime was changed during that interval in such a way that during the later years practically all of the students carried on during their menstrual periods the same physical activities to which they were accustomed at other times.

*See Study of Time Lost Due to Dysmenorrhoea, page 239.

†Lakeman — Epidemiologist, Massachusetts Department of Public Health. For record and address of author see "This Week's Issue," page 256.

Dr. Florence Meredith[2], in an article entitled "Functional Menstrual Disturbances", writes:

"A physician who examined a large number of college girls ten years ago found that 75 per cent had dysmenorrhoea quite regularly. At the present time out of 749 girls only 17 per cent were troubled at all by pain at the menstrual period, and only about half of these regularly. . . . The reason for the decrease I believe to be, first, an improved attitude in the minds of the girls towards the menstrual function. For the most part they now consider it, as they should, a normal function, one which should not give them pain and not be anticipated as a time of invalidism. The second reason for the improvement is, I think, that girls are now indulging in a much greater degree of general activity during the period."

TABLE I

	School				Training College			
	Years 1916-1920 734 girls		Years 1920-1924 612 girls		220 Students			
	First Interview		Last Interview		First Interview		Last Interview	
Dysmenorrhoea:	Per cent		Per cent		Per cent		Per cent	
Slight	40.0		10.2		8.6		3.6	
Sub-acute	1.6	46.7	0.5	10.8	7.2	19.4	1.6	5.6
Disabling	5.1		0.1		3.6		0.4	
Occasional	Not recorded		7.6		5.3		3.6	

In a teachers' college, in the course of a routine examination at the beginning of the college year, between 1922-1926, the writer questioned 644 students with regard to pain at the time of menstruation. Of these students, 25.7 per cent stated that they were accustomed to have pain "occasionally", "often", or "always".

CONCLUSIONS

In spite of the small number of cases studied, and recognizing that the personal element was by no means eliminated in this modest study of girls in industry, we feel, nevertheless, that the replies suggest that there may be some fundamental cause for the great difference in relation to menstrual pain between the experience of these girls in industry and that of the students who were the subjects of the studies quoted.

COMMENT

Is it that the industrial girls have not had the opportunity, nor perhaps the desire, for the physically active life which Dr. Sanderson Clow encourages her students to carry on during, as well as between, the periods? Or is it that a higher standard of general hygienic living prevails among the students? Does it mean that the industrial girls possibly seize every opportunity which offers to absent themselves from their labors? Or is it the prevailing mental attitude, an assumption that the days of menstrual flow are days of expected invalidism passed on from mother to daughter which may persist in the family of the industrial girl, whereas such an attitude is combated and often overthrown by the independent student, encouraged by her teachers and examining physician?

These questions, and many others, still await a definite answer, but the swing of the pendulum among the younger physicians, especially women, and among teachers of physical education is obviously toward more freedom in activity by girls and women during the recurring periods than was recognized as safe or wise a generation ago.

It is significant of this changing attitude that the National Conference on College Hygiene which met in Syracuse in 1931, in the report of its proceedings, makes the following statement with regard to the participation of students in activities during their menstrual periods:

"The normal girl and the girl with slight dysmenorrhoea should continue her usual activities or be permitted to elect lighter work if she desires. She should not, however, engage in competitive sports or exercise involving jumping, the first two days during the period of uterine congestion."

NOTE: The writer is indebted to Miss Jessie Bentley of the Arlington Mills, Lawrence, Massachusetts and Miss Wilhelmina Grasshoff of the Washington Mills, Lawrence, Massachusetts. Also to the following representatives of the General Electric Company, Dr. G. H. Cowle of Schenectady, New York, Miss Agnes Sutherland of Youngstown, Ohio, Mrs. M. A. Barney of Bridgeport, Connecticut, Miss Patricia Boyd of Cleveland, Ohio, and Mrs. Gibson of Erie, Pennsylvania, whose coöperation was granted through the courtesy of Dr. Alice Hamilton of the Medical School of Harvard University. Also to Miss Mildred E. Kennedy, who analyzed the material.

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STUDY OF TIME LOST DUE TO DYSMENORRHOEA

(Underline appropriate answer)

(1) Age: (0) 14 (1) 15 (2) 16 (3) 17 (4) 18 (5) 19 (6) 20 (7) 21 or over.
(2) Conjugal state: (0) Married (1) Single (2) Widowed (3) Divorced or Separated.
(3) Nationality: (0) U. S., (1) Ireland, (2) Russia and Poland, (3) Italy, (4) Wales, England and Scotland, (5) Austria, Germany, Holland and Belgium, (6) Norway, Denmark and Sweden, (7) Spain, Greece, Portugal and France, (8) French Canada, (9) Other Canada, (10) Finland and Lithuania, (11) Other Unknown.
(4) What is your position: (Write in) ————————————

During the working day:

(5) How many hours do you stand: (1) 1 hr., (2) 2 hrs., (3) 3 hrs., (4) 4 hrs., (5) 5 hrs., (6) 6 hrs.,
(6) How many hours do you sit: (1) 1 hr., (2) 2 hrs., (3) 3 hrs., (4) 4 hrs., (5) 5 hrs., (6) 6 hrs.
(7) How many hours do you move about: (1) 1 hr., (2) 2 hrs., (3) 3 hrs., (4) 4 hrs., (5) 5 hrs., (6) 6 hrs.,

Outside working hours:

(8) How many hours each week-end do you exercise: (1) 1 hr., (2) 2 hrs., (3) 3 hrs., (4) 4 hrs., (5) 5 hrs., (6) 6 hrs.
(9) How many hours each day do you exercise: (Include walking to and from work) (1) 1 hr., (2) 2 hrs., (3) 3 hrs., (4) 4 hrs., (5) 5 hrs., (6) 6 hrs.
(10) Do you take the same amount of exercise during your menstrual period: (0) Yes, (1) More, (2) Less.
(11) Do you lie down during your menstrual period: (0) Occasionally, (1) Always, (2) Never.
(12) If so, for how many hours as a rule: (1) 1 hr., (2) 2 hrs., (3) 3 hrs., (4) a whole day.
(13) How old were you when menstruation first occurred: (1) 11, (2) 12, (3) 13, (4) 14, (5) 15, (6) Over 15 years.
(14) Do you have pain with your menstrual period: (0) Occasionally, (1) Always, (2) Never.
(15) How many days does the pain continue: (1) 1 day, (2) 2 days, (3) 3 days, (4) 4 days, (5) More than 4 days.
(16) If you have pain, is it: (0) severe, (1) slight.
(17) Do you have headache with your menstrual period: (0) often, (1) occasionally, (2) never.
(18) Do you have nausea with your menstrual period: (0) often, (1) occasionally, (2) never.
(19) If you could go home without loss of pay, would you do so: (0) Yes, (1) No.

PHYSICAL DIAGNOSIS PRIOR TO AUENBRUGGER*

BY ROBERT W. BUCK, M.D.†

WHEN Corvisart, in 1808, published his translation of Auenbrugger and thereby gave the obscure Austrian physician his European reputation, he chose as the motto for his book the Latin words *resonuere cavae cavernae* —the hollow cavities resounded—from that part of the second book of the Aeneid which describes the examination by the Trojans of the wooden horse left by the Greeks. Laokoon hurled his spear at the side of its chest with the result referred to. If Corvisart had cared to read farther into his Aeneid, he would have found that this was not all that Virgil knew of the principles of percussion. In the fifth book, describing the exchange of blows between old Entellus and young Dares, he says *pectore vastos dant sonitus*—from their chests the blows resound aloud—quite clearly an anticipation by eighteen hundred years of Auenbrugger's first observation: *thorax sani hominis sonat si percutitur*—the chest of a healthy man resounds if struck.

Apparently the Roman physician A. Cornelius Celsus, who as a boy might have seen the great poet face to face, and who probably was familiar with the passage from his school days, made no such practical application of this observed phenomenon to medicine as did the young Auenbrugger. However, a few generations later, in the second century of our era, it appears that a knowledge of the use of percussion as a means of eliciting informatory sound from the interior of the human body was general—not percussion of the chest, to be sure, but percussion of the abdomen.

Soranus of Ephesus, for example, in his textbook of gynecology speaks of the possibility of thus differentiating a uterine mole (? fibroma) and "hydrops":

"When as a result of this (i.e., mole) the whole body increases in size, and the tumor grows steadily larger, one thinks of dropsy. However, the condition may be distinguished from dropsy in that pressure with the hand results in the production of neither a tympanitic sound nor fluctuation, such as occurs in dropsy." (*περὶ γυναικείων*, Book II, Ch. IX[1].)

Again, Aretaeus of Cappadocia in his chapter on dropsy says, "For if the watery suffusion float in the flanks, and, owing to its fulness, when tapped it sound like a drum, the disease is called Tympanites." (*περὶ αἰτιων καὶ σημείων χρόνιων πάθων*, Book II, Ch. I[2].) And Galen himself in his monograph on the pulse

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speaks of abdominal tympany as an indication of "spirits" or air, while fluctuation is a sign of fluid or "humor"—*strepitus in modum tympani spiritum annuntiat, fluctuatio humorem.* (*De diagnoscendis pulsibus*, Lib. IV, Cap. III[3].)

That percussion was not an invention of this period, however, is to be inferred from the fact that four hundred years earlier, in the second century before Christ, Nicander uses the expression "tympanitic dropsy"; the very use of the word implying that the abdomen was struck to produce a drum-like sound. (*Alexipharmica* V, 334[4].)

Throughout the Dark and Middle Ages, these observations were copied and repeated, and may be found in the works of Paulus Aegineta (625-690), Rhazes (850-923), Avicenna (980-1037) and after them many others[5].

When the *Inventum Novum* appeared, Auenbrugger's contemporaries were not greatly impressed and were all but unanimous in agreeing that all he described had been anticipated by Hippocrates. They referred to the well-known succussion maneuver:

"Bathe the patient in hot water, place him on a firm seat, and let an assistant hold his hands while you yourself shake him by the shoulders so that you may hear on which side the sound of the disease may be perceived." (*περὶ νούσων τὸ δεύτερον*[6].) This use of sound in diagnosis is properly to be regarded as an early use of auscultation rather than percussion. Hippocrates, of course, heard crepitant râles; witness his description of the physical findings in a case of pulmonary edema: "If the ear be held to the side of the chest and one listens for some time, there is heard a boiling sound within, like vinegar[7]." Oliver Wendell Holmes, in his Boylston Prize Essay (1836), maintained that Hippocrates also described the dry crackling râle of Laennec when he said, in describing a case of pleurisy, that "the breathing sounds like the crackling of parchment" but this passage is now translated "like the creaking of leather" and is accepted as the first description of the friction rub[8].

But Hippocrates was certainly not the first to make use of auscultation. The Ebers papyrus, written in Egypt 1500 years before Christ and containing matter that is said to date back five to twenty centuries earlier, contains a reference in the ninety-ninth table to certain sounds that are "audible within the body[10]," though it has not been possible to ascertain just what sort of sounds are referred to.

As for auscultation of the heart, there is said to be some reference to its practice in the works of Pietrus Forestus (1527-1597), the Delft physician (Opera omnia ed 1653, vol. II, p. 241), and according to Morgagni, Stalpart van der Wiel (1620-1687) "tells us of a girl being cured by him, who had her face pallid, and very much swelled, and had never undergone any menstrual purgations, in whom 'he could very distinctly hear the agitation of the water itself in the pericardium, when the heart was pulsating'." Morgagni adds that if such a phenomenon could be perceived "by physicians applying their hands or their ears to the region of the precordia . . . it would be an excellent sign of the disease, in preference to all others, and might be esteemed pathognomonic." (*De Sedibus et Causis Morb.* Lib. II, epist. XVI[11].)

The heart sounds were mentioned clearly and by name in 1628 by William Harvey (*De Motu Cordis, Cap. V*): "With each movement of the heart when a portion of the blood is transferred from the veins to the arteries . . . a pulse is made which may be heard in the chest (*pulsum fieri, et exaudiri in pectore contingit*[12].)" (This sound is only to be heard in London-*tantummodo Londini exauditur*, sneered Aemilius Parisanus of Venice.) Thereafter they were occasionally spoken of (cf. James Douglas, *Phil. Trans. for 1715*, No. 344) but received no serious attention until Laennec invented the stethoscope.

From the Smith papyrus we learn that palpation was practised as a diagnostic method by Egyptian physicians in the fourth millennium before Christ. For example, they studied the heart by counting the pulse: "Now if the priests of Sekhmet or any physician put his hands or his fingers upon the head . . . or upon the pulse, or upon the two feet, he measures the heart, because its vessels are in the back of the head and in the pulse; and because its pulsation is in every vessel of every member. . . .He measures the heart in order to know what is befalling therein[13]." They also felt for crepitus in broken bones, and they used something very much resembling what we call Lasègue's sign in the diagnosis of the contemporary equivalent of sacro-iliac sprain: "If thou examinest a man having a sprain in a vertebra of his spinal column, thou shouldst say to him: 'Extend now thy two legs and contract them both again.' When he extends them both he contracts them both immediately because of the pain he causes. . . . Thou shouldst say concerning him: One having a sprain in a vertebra of his spinal column. An ailment which I will treat[14]."

Li Peh, a court physician to the semi-legendary third Chinese king, Huang-Ti, is said to have written a monograph on the pulse in the year 2639 B. C.[16]

Hippocrates recognized enlargement of the spleen, whether by palpation or by inspection we can only surmise. "The spleen swelled and formed a round tumor," he says, in detailing the case of Philiscus, in the first book of Epidemic Diseases[9].

Inspection is the oldest of diagnostic arts. Medical literature from the Edward Smith

papyrus to Morgagni, the contemporary of Auenbrugger, abounds in examples of description that reveal a keen appreciation of minutiae of the external appearances resultant upon disease. The surgeons who attended the poor slaves who tumbled off the mounting pyramids described facial paralyses following skull fractures; they recognized the stiff neck of meningitis, and they knew that a perforating wound of the temporal bone might be followed by aphasia: "if thou ask of him concerning his malady and he speak not to thee; while copious tears fall from both his eyes, so that he thrusts his hand often to his face that he may wipe both his eyes with the back of his hand as a child does, and knows not that he does so. . . . Thou shouldst say concerning him: One having a wound in his temple, penetrating to the bone, and perforating his temporal bone; while he discharges blood from both his nostrils, he suffers with stiffness in his neck, and he is speechless. An ailment not to be treated[15]." The description of the Hippocratic facies, Aretaeus the Cappadocian's vivid picture of the phthisical habitus, and Sydenham's description of chorea are memorable examples of the result of expert inspection.

The widely scattered observations that I have collected here are sufficient evidence that inspection, palpation, auscultation, and percussion are ancient medical practices. To this day we are one with Hippocrates who said, "It is for us to examine those things which are to be perceived by the sight, and the touch, and the hearing, the nose, the tongue, and the understanding."

After all, however, is it quite proper to consider these methods of physical examination as they existed prior to Auenbrugger, as examples of physical *diagnosis?* I think not. The accurate differentiation of morbid states in the living patient is a possibility only if the structural changes underlying them are known, and pathology was embryonic before Morgagni and Auenbrugger. The advice given to the medical profession in 1605 by Francis Bacon, that "the footsteps of diseases . . . ought to have been exactly observed by a multitude of anatomies . . . and carefully set down . . . with a reference to the diseases and symptoms which resulted from them[17]" went unheeded for nearly two centuries. Even Auenbrugger's pathology was a bit weak; witness his sixth observation, where, in discussing the various etiologic factors concerned in the production of the preternatural percussion sound, he says: "None of them, in my observation, is more apt to lead to dulness of the normal percussion note of the chest than the lost hope of obtaining what is most dear.* Nostalgia or homesickness here takes first rank."

But it is none the less Auenbrugger's pathologic point of view, his presentation to us of a "means of demonstrating the seat of organic disease of the chest, and at the same time of performing an autopsy *in vivo*", as Neuburger remarks, that enables us to say that his unique and sufficient claim to prominence in the history of physical diagnosis is that he truly invented it, a feat that establishes him in the first rank of those who have contributed to the mighty structure of modern scientific medicine as it has developed within the last hundred and fifty years.

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**Spes succisas optatum impetrandi.* Cf. Proverbs XIII, 12: Hope deferred maketh the *heart* sick!

INSULIN THERAPY IN POST-PELLAGROUS TROPHIC ULCERS

BY ELIZABETH ANN SULLIVAN, M.D.*

INSULIN has proved a valuable therapeutic agent to increase appetite, nutrition and weight in thin undernourished individuals. Insulin was used in the case to be described to improve nutrition and thereby to hasten the reparative processes in trophic ulcers associated with pellagra. The trophic ulcers were the last manifestation of a fulminating pellagra of four months' duration and appeared after the subsidence of severe cutaneous, gastro-intestinal and neurological symptoms. The pellagra had been treated by a diet rich in vitamin G and by local and general therapy for lesions and symptoms.

Three months after the onset of the pellagra and after the disappearance of the pathogno-

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monic signs the first group of bilateral, symmetrical trophic ulcers appeared on the feet. This first set of ulcers which healed in eight weeks was treated, in addition to the dietary measures, by protective and antipruritic ointments and other medicaments. Two weeks later a second set of symmetrical lesions more severe and diffuse than the first appeared on new sites on the feet and lower legs. Notwithstanding energetic dietary and local treatment for six weeks this second set of ulcers enlarged, the feet became indurated and inflamed and the patient steadily lost appetite and weight. Insulin was then started and in two weeks the induration of the feet had gone and the ulcers healed; appetite returned, weight increased and the paresthesias of the toes disappeared.

CASE REPORT. Mr. X., aged thirty-five, white, married, chauffeur, was born and lived in Massachusetts. For ten years he has been periodically alcoholic.

In December, 1931, he began one of his periodic alcoholic episodes and after four months of living on an inadequate scanty diet he developed late in March, 1932, his first physical symptoms of pellagra, —a reddish discoloration on the backs of the hands and soreness of the mouth.

For one month prior to May 30, the day of the examination, he had complained of burning sensations in the thickened discolored areas on the backs of the hands, increasing soreness of the mouth and indefinite gastro-intestinal disturbances such as anorexia, colicky pains in the abdomen, tenesmus and constipation alternating with diarrhea. For two weeks prior to examination he suffered from insomnia, headache, vertigo, paresthesias and muscular weakness.

On physical examination he was found to be a well-developed, sick looking man, five feet, ten and one half inches tall, 139 pounds. His lips were swollen and crusted, his tongue a beet red, and on the edges were aphthous ulcers. He could open his mouth only with difficulty. His teeth were in poor condition and his gums spongy.

On the backs of both hands there was a dermatitis extending over the entire wrist forming a gauntlet-like lesion. The lesions were dry, scaly and bluish red with thickening of the deeper layers of the skin. This dermatitis was symmetrically located on the hands, malar prominences, sides of the neck and dorsi of the great toes.

The heart was negative, the pulse 100, the blood pressure 135/70, the temperature 98.8, and the hemoglobin 80 per cent. The lungs showed thickening in the upper thirds and about the hili. The abdomen was scaphoid with some tenderness over the pelvic region. The liver and spleen were not enlarged. The Wassermann reaction of the blood serum and spi nal fluid was negative. The blood smear was negative. The urine showed a trace of albumin and sugar.

His gait was steppage and he tended to stagger The left pupil reacted normally and the right slowly to light. There was no tremor of the tongue or hands, the deep reflexes were exaggerated and there was some swaying on Romberg. There was a bilateral symmetrical polyneuritis affecting the arms mildly and the lower legs severely. All forms of sensation in the feet were impaired and on the tips of the toes there was no feeling to touch but marked sensitivity to pain.

On July 23 he had sufficiently recovered from the pellagra and his neurological complications to return to his work which for a time required several hours of walking each day. About a week later his feet and ankles started to swell and during the hot weather in the middle of August the first set of trophic lesions appeared. They were bilateral, symmetrically located areas on the dorsum of each foot that broke down and formed ulcers varying in size. These ulcers itched, burned and pained, became crusted and slowly healed in eight weeks.

On October 1 Mr. X. became agitated, neglected his diet and the care of his feet, walked excessively and drank moderately of alcohol. On October 15 he complained that the dorsi of both feet and the lower legs itched, burned and pained as before. In a few days ten lesions varying in size from 1 to 4 cm. in diameter, located symmetrically on each foot, broke down with ulcer formation. In the initial stage of the lesion there was blanching of the skin with a fine line of demarkation between it and the healthy skin; then a sloughing of the blanched area with the formation of moist, shallow, discrete ulcers with reddened everted edges. The new lesions were not located over the sites of the original ulcers which had healed without scar formation. Both feet became indurated and the toes at first red later turned copper color. At the end of six weeks the patient was mildly toxic, his nutrition poor and his feet alarmingly inflamed and indurated. The urine and blood sugar were normal. At this time insulin was started. Almost immediately the patient's appetite returned, his nutrition improved and the ulcers began to close in, healing in two weeks. There was a five pound gain in weight and the disturbances in the sensation of the feet lessened.

The dietary treatment for pellagra was actively continued during the periods of the trophic ulcers. The diet consisted of foods rich in vitamin G,—a deficiency of which has been shown to be responsible for pellagra. The foods that are particularly high in vitamin G content are the fresh meats, milk, the leguminous vegetables and dried yeast. For the general avitaminosis vitamins A and C were prescribed. They are found in the dairy products, the yellow and foliage vegetables, and fresh or canned fruit and vegetable juices. Cod liver oil for vitamins A and D was given in large doses. The caloric content of the diet was increased by the addition of extra fats and concentrated carbohydrate foods.

The local and general treatments for the trophic ulcers were as follows: various protective or antipruritic washes, powders and ointments were used, such as carbolic acid two per cent in lime water, crude coal tar 10-25 per cent in zinc ointment; saline and sodium bicarbonate soaks. Local hyperemia was induced by prolonged hot soaks and by the use of a 2 inch rubber band applied above the lesions for short periods.

As local remedies could not control the burning itching pains of the ulcers, codein gr. ¼-½ was given every four hours with triple bromides grs. 30. This therapy was effective in the first set of lesions but in the second set it was ineffective. Insulin was started in the middle of November with immediate improvement. Three units of insulin were given morning and evening and the dose increased one unit a day up to twelve units. It was intended further to increase the insulin but because of a moderate insulin reaction following a single dose of ten units this was not done.

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BRODIE'S ABSCESS OF A SPINOUS PROCESS

BY HARRY R. WHEAT, M.D.,* AND LOUIS E. HATHAWAY, JR., M.D.*

THERE has been considerable literature in the past thirty years on acute and subacute osteomyelitis of the spine, but relatively little has been said of the chronic localized type of Brodie's abscess.

A brief résumé of American and European literature discloses less than one hundred and fifty cases of osteomyelitis of the spine, which is consistent with the accepted opinion, namely, that localization of osteomyelitis in the spine is a comparatively rare disease and occurs in less than 0.5 per cent of all cases. It has been generally conceded, however, that due to the difficulty of diagnosis and the depth of the localization in the spine, this condition is probably more common than has been supposed. In fact, of all the reported cases to date not more than one-third were correctly diagnosed before operation or postmortem.

Osteomyelitis of the spine as elsewhere in the body gives symptoms which vary with the virulence of the organism involved in the blood stream invasion. Trauma is considered to play an important part in the localization plus lowered resistance and intercurrent suppurative infection such as furuncles and felons; and the most common bacterial offender is the staphylococcus aureus.

This condition is essentially a disease of children and young adults as the greatest proportion of cases occurs between the ages of five and twenty years; and it occurs more frequently in males than females in a ratio of three to one. The localization of Volkmann's[1] series of eighty-seven cases was as follows:—

Thoracic	Spine—32
Cervical	Spine—20
Lumbar	Spine—35

Most recent authors on this subject give a larger proportion of cases occurring in the lumbar spine, due to its greater mobility and its exposure to trauma. The neural arch and the processes are more commonly involved than the centrum or body of the vertebra; fortunately so, because the high mortality which still exists in this disease occurs mostly in the body type which ruptures into the spinal canal to produce a purulent meningitis.

Recently there came under the care of one of us (H. R. W.) a case of circumscribed osteomyelitis of the spinous process of the third lumbar vertebra which we consider to be of interest.

CASE REPORT

J. B., male, seventeen years of age was seen December 12, 1930 complaining of limitation of motion in forward back-bending and pain in the lower lumbar spine which kept him awake at night.

In July, 1930, while attending a summer camp he took setting-up exercises with the group but noticed a pulling sensation in his lower back and down the back of his legs which limited his forward back-bending but gave no definite pain.

In September, 1930, he first had a dull pain in the lumbar region especially when lying down. This pain gradually increased in intensity and persistence until it would wake him up at night and trouble him when sitting down, so that he used a pillow at his back.

On December 9, 1930, he consulted Dr. Ralph B. Ober who had roentgenograms taken and referred him to Dr. Wheat for treatment.

Physical Examination—**The patient was a well-developed and well-nourished white male of 17 years who stood with poor posture, the right shoulder being slightly higher than the left; there was a definite low lumbar curve to the right. All motions of the lumbar spine including hyperextension were definitely limited and painful. Palpation revealed marked tenderness over the spinous processes of the third, fourth and fifth lumbar vertebrae.**

The roentgenogram (fig. I) showed a localized

FIG. I.

circumscribed area of pathology in the spinous process of the third lumbar vertebra. In differential diagnosis the following conditions were considered: (1) myeloma—ruled out on negative x-ray findings of the skull and flat bones; (2) congenital deformity in a secondary ossification center, and (3) chronic osteomyelitis. The latter was taken as the most likely diagnosis, and operation was advised.

He was admitted to the Springfield Hospital on December 17, 1930. Blood examination was as follows: hemoglobin—90%; R.B.C.—4,704,000; W.B.C.—9,800; differential count—77-20-1-1-1. After a two-day skin preparation of the back, an osteotomy was performed.

Operative Note—**"There was considerable edema and some scarring in the tissues adjacent to the spinous process of the third lumbar vertebra. This spinous process was removed intact and parts of**

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the processes of the second and fourth lumbar vertebrae were removed sloping toward the depression (absence of third) leaving a saucer-like wound. As it was considered better judgment for the safety of the patient, the wound was packed open with vaseline gauze.

Pathological Report of Dr. Frederick Jones—Chronic osteomyelitis with sequestrum formation. Culture shows no growth in twenty-four hours (See figure II of cross section through removed spinous process).

Follow-Up—Postoperative x-rays taken January 13, 1931, No. 8205 report. "Osteotomy of second, third, and fourth lumbar vertebrae with remaining processes show clear cut outline with no evidence of bone destruction" His wound was completely healed by granulations at the time of his discharge from the hospital on January 21, 1931.

He was fitted with a spring back brace to correct poor posture and treat the lateral curvature and later was given corrective exercises. During the spring he played golf and tennis while wearing his brace, which was removed in June, 1931. There is still some lumbar curve, but he was holding it well when seen in October, 1932. He has no limitation of back-bending motions and follows the routine life of a healthy active student.

Only a small number of cases of osteomyelitis localized in the spinous process have been reported and most of these have followed a subacute course. Volkmann[1] listed ten cases in his large series. Schwarz[2] has four more, and Rosenburg[3] reports an isolated osteomyelitis of the spinous process of the atlas with sequestration and recovery. In most of the reported cases a portion of the diseased spinous process was found as a sequestrum in the abscess cavity.

Wohlgemuth[4] reported two fatal acute cases involving the spinous processes while Hartfall[5] quotes another fatal acute process in the thoracic spinous process where the infection traveled beneath the ligaments and entered the spinal canal to produce a purulent meningitis.

It is probable that a large number of individual cases of this condition are treated but never reported, and therefore we feel that osteomyelitis of the spine is much more common than has been supposed and should be considered in differential diagnosis whenever back pain and limitation of motions in the back are seen. As in acute osteomyelitis elsewhere, the roentgenograms are of little or no help in making the diagnosis in the first two weeks of the disease, but they are of great value in the subacute and chronic cases.

Probably the most common condition to be considered in differential diagnosis is tuberculosis and the chief points of differentiation are as follows:—

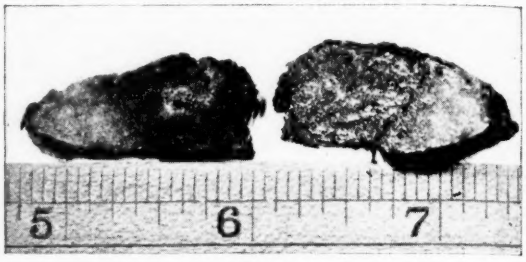

FIG. II.

TUBERCULOSIS VS. OSTEOMYELITIS

1)	Pathology begins in the intervertebral discs.	Pathology begins in the bone itself.
2)	Two or more vertebrae involved.	One vertebra usually.
3)	Produces gibbus or kyphos.	Usually no gibbus.
4)	Insidious onset.	May be acute or chronic.

TREATMENT

The treatment of osteomyelitis of the spine whether it be acute or subacute or chronic in nature is surgical intervention with the extent of surgical procedure depending on the general condition of the patient.

In conclusion, we wish to say that in an extensive survey of the literature we have been unable to find a similar case of chronic osteomyelitis or Brodie's abscess of a spinous process.

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SUBCUTANEOUS EMPHYSEMA COMPLICATING PARTURITION

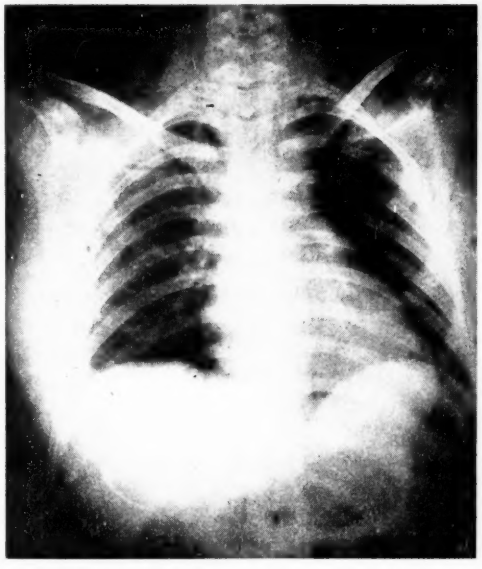
Report of a Case

BY JOHN A. MARONEY, M.D.*

SUBCUTANEOUS emphysema occasionally complicates the course of labor, and cases have been reported from time to time. Originally recorded by Simmons in 1783, C. A. Gordon was able to collect only 130 cases in 1927 when reporting two of his own. Since 1927 approximately twelve cases have been reported.

The condition occurs usually in young, healthy primiparae at term during the second stage of labor, but it is not unknown in multiparae, and has been reported during the first stage of labor, in the elderly and in premature labor. It is usually associated with violent, prolonged expulsive efforts, a long first stage and dystocia of various types. Pathologically it is thought to be due to rupture somewhere along the respiratory tract, but the exact mechanism is unknown. Viana cites a case that he thought was caused by rupture of the nasolacrimal duct, and Davidson feels that extrapleural rupture of pulmonary vesicles or of the bronchial tree is the probable cause. The distribution of the emphysema varies with the individual case, and in some is probably limited by the bony attachment of fascial planes. The face and neck are involved in practically all the cases, and the emphysema may extend to include the chest, abdomen and extremities. Subjectively the patient complains variously of pain, sense of tension, difficulty in breathing, cough, difficulty in swallowing, stiffness, choking sensation and rarely aphonia; while objectively there is soft tympanitic swelling giving away under pressure, tenderness and characteristic crepitation. Occasionally there is discoloration. Changes in the lung may or may not be present.

CASE NO. A96341—C. F.—A nineteen year old white, healthy, full-term primipara, position LOA, was admitted to the Worcester City Hospital September 16, 1931. The family history and the past history were negative. She had been seen at weekly intervals at the out-patient prenatal clinic, and at no time did she show evidence of complication. She was admitted in active labor. Her pelvic measurements were as follows: intercristal—29 cm.; interspinous—24 cm.; external conjugate 10 cm.; diagonal conjugate—12 cm.; transverse diameter of outlet—9 cm. The first stage lasted 40.5 hours. The second stage lasted 2.5 hours, and she delivered spontaneously a normal, living, male infant weighing 3,940 grams. The placenta was expressed by modified Credé's maneuver within 15 minutes. Hemorrhage was normal. The



CASE A96341 C. F. Subcut. Emphysema in Labor. X-ray No. 66246. Report: Soft tissues of neck show marked emphysema. Chest examination entirely negative.

emphysema occurred in the late first stage and became more marked during the second stage, beginning by slight swelling of the lower lid of the right eye, subsequently involving the right side of the face, the right side of the neck, the left side of the face, the left side of the neck and the entire upper anterior part of the chest wall. She complained only of a sense of tension, and at no time was there any cyanosis, cough, dyspnea or other symptoms referable to pressure distress. Characteristic crepitation and soft, spongy swelling were present without tenderness. The lungs were negative. X-ray taken the following day (62246) was reported "Soft tissues of neck show marked emphysema. Chest examination entirely negative." Her convalescence was uneventful. The emphysema began to subside in three days and was entirely gone in eleven days.

*Maroney—Resident Surgeon, Worcester City Hospital, Worcester, Mass. For record and address of author see "This Week's Issue," page 256.

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CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 19311*

JAUNDICE AND AN ITCHING SKIN LESION

DERMATOLOGICAL DEPARTMENT AND EYE AND EAR INFIRMARY

PRESENTATION OF CASE

DR. KNOX H. FINLEY:** This is the case of a married white woman forty-nine years of age who was admitted to the Dermatological service. She was referred from the Skin Room of the Outpatient Department with a history of generalized itching for three months and a rash which came on a few weeks after the onset of the pruritus. She gave a history of similar attacks in October of the two preceding years.

Past history. Twenty years before admission she had a purulent vaginal discharge. At this same time her husband was being treated for a urethral discharge. For the past five years she had had chronic catarrh.

On physical examination she was found to have a generalized papular eruption, most of the lesions being crusted and showing evidence of excoriation. The visiting man thought the rash secondary to scratching. The liver was palpable two fingerbreadths below the right costal margin and there was definite tenderness in the right upper quadrant. The spleen was just palpable on deep inspiration.

On the second day after admission jaundice of the sclerae was noticed. On the following day a blood Wassermann and a Hinton report came back strongly positive.

On the ninth day after admission the Medical service was consulted. Dr. Kranes felt the liver four fingerbreadths below the costal margin, definitely larger than at the time of admission. She was started on potassium iodide at that time as a therapeutic test for luetic hepatitis. No improvement was evident, for on the twenty-fifth day examination revealed the liver still four fingerbreadths below the costal margin.

The gall bladder failed to fill with the Graham test. In the same film there was a large, unusually dense shadow in the region of the liver, and beneath this a second soft tissue mass just above the crest of the ilium. On the left side there was a third dense mass extending down beneath the costal border. One of the consultants from the Medical service palpated a mass in the upper portion of the right lower quadrant. An intravenous pyelogram was suggested. These x-rays suggested a downward displacement of the right kidney.

Laboratory findings. Out of three blood Wassermann tests two were positive and one negative. The white cell count at admission was 6,000. At the time of transfer to the Ear service it was 11,000. One blood culture taken just before transfer to the Eye and Ear Infirmary was reported negative. Van den Berghs were 3.92 to 5.02, direct reaction. The icteric index was 30 to 25. Liver function tests disclosed 18 to 45 per cent retention.

A further complication was a temperature of 101° for the first week. On the tenth day in the hospital it rose to 102°. She complained of tenderness in the left ear. The Ear service suggested acute otitis media. The ear drum was incised and drained. Immediately after this the temperature dropped to normal and remained normal until the twenty-sixth day, when it rose to 103°. The Ear service was called in again and found tenderness over the left mastoid. Nystagmus was also noted. The patient was transferred to the Eye and Ear Infirmary.

The day after transfer a left mastoidectomy was performed. She developed a postoperative temperature of 106° which remained at that level until just before death. On the sixth day after the mastoidectomy the white cell count rose to 26,000. Three blood cultures taken in the Infirmary, one before operation and two after it, were positive for hemolytic streptococcus. Ten days after admission to the Infirmary and six weeks after admission to the Dermatological service of the Massachusetts General Hospital the patient died.

CLINICAL DISCUSSION

In Dr. Cabot's Class

DR. RICHARD C. CABOT: Up to the physical examination I am entirely in the dark.

The icteric index gives us one definite fact. We certainly have some jaundice. Jaundice is one of the things that make people itch, but I do not suppose it is all we are dealing with here.

The liver function tests show the kind of percentages that do not help us. It is the high percentages of retention that seem to me useful.

Since the x-ray people got busy some facts have come out that are more in my line. There seems to be an enlarged liver; there are masses below the liver and in the region of the spleen. There is definite jaundice and there seems to be a deficient liver function.

The pyelogram apparently showed that the kidneys were normal aside from displacement.

DR. CHARLES B. ALLMAN: I saw her the first

*The following report gives the essentials of two discussions, one in Dr. Cabot's Third Year class, one in a conference of the hospital staff.

**Interne on the West Medical service.

night, when a question came up about the mastoid. She had had the ear opened about three weeks previously. When I saw her she had definite tenderness over the mastoid, she had a temperature of 103° and nystagmus to the left, that is to the involved side. The x-rays were questionable. The next day she was transferred to the Eye and Ear Infirmary and I did a left mastoidectomy. The mastoid was badly broken down. I do not know why the x-ray did not show it; it does not always. The mastoid was filled with pus. We cleaned the cavity out thoroughly. With that temperature of 103° the night before and the history of one chill and some nausea the night before, we suspected a thrombosis of the lateral sinus. We uncovered the lateral sinus and it looked normal, which does not always mean that it is not thrombosed. We let that alone and uncovered the dura. That was normal. We put in an iodoform drain and left it.

The next afternoon the temperature went to 105.5°. She had some chills and a little more nausea. The nystagmus was persistent. We wanted a medical consultation. For some reason we did not get one that night. We wanted to tie the jugular. The next morning a medical consultant said she had pneumonia, so we let that go. We did not want to tie the jugular in the face of that.

DR. CABOT: Dr. Holmes, we are in a bad mess here. I want every kind of help I can get.

DR. GEORGE W. HOLMES: I will show the films, but I do not expect to get you out of trouble by any means. The early descriptions I think were based on this set of films. You see a very dense shadow in the region of the liver, with an overlapping shadow. That might be the edge of the liver. This shadow is either part of the liver or masses in the liver. Below it is the shadow of the psoas muscle. This is the crest of the ilium and this the shadow of the mass that was described.

Later, after neo-iopax was given, the kidney was located. It is displaced downward, perhaps by the mass above it. The other kidney is also visible, has a normal pelvis, normal density and normal shape. As in the earlier films, we have normal lungs, heart and great vessels, so that we know that any changes showing in the present film are not of long duration.

In the portable film, taken on the sixth of February, the diaphragm is a little high on the right and the hilus shadows at the roots of the lungs are prominent. In comparing this film with the earlier ones we have to take into consideration the fact that there is motion and magnification and that the lungs were not so well inflated. I should question whether there was anything definitely abnormal in the chest at this time.

The films taken of the gall bladder are essentially negative, do not add anything to what we already know. There is certainly a definite abnormality of the mastoids. I should hardly expect that they would have been interpreted as negative.

DR. ALLMAN: Doubtful, I think.

DR. HOLMES: The left mastoid is much more dense than the right. Which one had the trouble?

DR. ALLMAN: The left.

DR. HOLMES: That is as one would expect.

DR. CABOT: Suppose this patient had not died, would you be willing to raise your right hand and swear that there is no x-ray evidence of disease except in the mastoid?

DR. HOLMES: And the liver, yes.

DR. CABOT: There is something in the liver?

DR. HOLMES: Not necessarily in the liver but in the region of the liver.

DR. CABOT: And the kidneys?

DR. HOLMES: The kidneys are normal except that one is in malposition.

DR. CABOT: Positive then as to something in the region of the liver and in the mastoid.

DR. HOLMES: A badly damaged kidney would fail to secrete the dye, and there is no evidence of any tumor in the region of the kidney.

DR. MAURICE FREMONT-SMITH: All these films were taken before the Graham test, weren't they? It could not be the dye in the liver causing increased density?

DR. HOLMES: I do not know whether these films were taken before the Graham test or not. The Graham test does increase the density of the liver shadow, and x-ray observations as to the size of the liver are notoriously inaccurate, so that it is possible that we are making a statement that the liver is enlarged when it is not. It certainly looks large and increased in density in those films.

DR. CABOT: We have definite jaundice. That is one of the few definite things we have.

DR. HOLMES: I remember that we had a case, I think in this clinic, that showed a dense liver like this. Nothing definite was found at autopsy.

A STUDENT: It is stated here that the appearance of the liver was unusual, that it "approached that of patients who have received thorotrast." What is that?

DR. HOLMES: Thorotrast is a new dye used to demonstrate the liver and spleen. It is taken up by the liver and spleen and casts a very dense shadow.

DR. CABOT: The old blood vomited on the second day after the operation could not have had any connection with the operation. You did no throat operation at all, did you?

DR. ALLMAN: No, sir. The only possibility would be that the blood had gone up through the Eustachian tube into the throat. I do not see how so much, six ounces, could have gone through.

DR. CABOT: No, it is six ounces. That is a good deal, isn't it? Did anything come from culture?

DR. ALLMAN: The pus from the operation showed hemolytic streptococcus.

DR. CABOT: So the same organism was there evidently as in the arm. Streptococcus serum was given because they could not think of anything else to do, though I never heard of its doing any good to anybody.

I am still mostly in the dark. The one thing we know is the fact that has been brought out by this operation on the mastoid. We know she had a septic mastoid; we know she had hemolytic streptococcus in the blood, which presumably produced the trouble in the arm. Besides these manifestations of sepsis she has others which might be sepsis. She has chills and temperature which might go with sepsis; she has jaundice. Whether she has an enlarged liver I do not know; she has low kidneys; she had a low edge to the liver on which the normal notch was felt. The skin lesions nobody has said anything about since we got so busy in other directions. They do not seem to have been treated. I rather doubt if they had any connection with the case. It rather sounds as though a poor lady with skin lesions got beguiled into coming into a hospital, and after she got there her troubles began. But the one thing I know is what Dr. Allman has told us about the sepsis in the mastoid and the other manifestations of sepsis. She had a positive Wassermann more than once. Could we say that she had syphilis?

DR. TRACY B. MALLORY: There is a very small percentage of false positives that we have had in the face of icterus. I am sure it is under ten per cent, with the possible exception of cases of acute yellow atrophy. That has been claimed specifically to produce a false positive. Obstructive jaundice rarely does so. The Hinton test by and large is less affected than the Wassermann.

MISS PAINTER: They did give her, before she reached the Eye and Ear, potassium iodide and salicylate.

DR. CABOT: But no mercury and no arsenic.

DR. FREMONT-SMITH: Do you think she might have had arsenic before she came in, and would that account for her liver damage?

DR. CABOT: I should not suppose so. That is, in arsenical poisoning you do not expect the liver to get larger, and all the evidence we have is that it did get larger. All that I have seen has convinced me that making a diagnosis of syphilis in the face of a Wassermann alone is unsafe without history or lesions of syphilis.

MISS PAINTER: Apparently one of the medical consultants did get a history later.

DR. CABOT: Then we have to add that the positive Wassermanns would go with the history obtained by one of the consultants. Presumably in the past history we have something to show that she had had syphilis. What can it have to do with the present case? I do not see. There is no evidence that it was in the liver or in the heart or in the central nervous system. I do not know anything about the skin. I do not understand these skin lesions to be described as if they were lesions of syphilis. They would not have sent her into the hospital if they had thought so.

DR. FREMONT-SMITH: The skin lesions of syphilis do not itch.

DR. CABOT: No. I should say the skin lesions are not characteristic of syphilis. It seems to be a chronic thing. But we have some history and some Wassermanns to which Dr. Mallory says we should pay some attention.

A STUDENT: Wouldn't the enlarged left lobe of the liver be more likely to be syphilitic?

DR. MALLORY: I have more often seen syphilis in the left than in the right lobe, but except for the very transient stage the liver is apt to be smaller rather than larger than normal.

DR. CABOT: So I cannot use these data about syphilis. Let us start from the point of view of jaundice. It might be due to the sepsis which is the one thing we know she had. If it was not due to that, to what else might it be due? We have no evidence of gall stones or of cancer or of cirrhosis. I see no cause for that jaundice unless it was septic.

We have no evidence of damage in the chest. We do not need to think of the heart or lungs so far as I can see in the history or x-ray until we come to this question of a terminal pneumonia, which is certainly not the main thing. If she has it, it is probably part of the sepsis.

The best thing I can do, then, is to say this patient died of streptococcus sepsis on top of something else,—on top of what I cannot say.

DR. FREMONT-SMITH: That description of the lesions is not that of Hodgkin's disease. Could she have had a leukemia?

DR. CABOT: I was thinking of that, because about the only skin lesions we see here in these exercises are Hodgkin's or leukemia. But I should say no; the blood does not suggest leukemia and there are no glands to speak of. The spleen is palpable. I should say we have not enough evidence to say Hodgkin's or any form of lymphoblastoma.

I can go no farther.

CLINICAL DISCUSSION

AT STAFF CONFERENCE

DR. FINLEY: In the light of the positive blood Wassermann and Hinton her liver condition was considered acute luetic hepatitis on the third day. The final diagnosis from the Ear service was acute mastoiditis with streptococcus septicemia and pneumonia.

DR. HOLMES: This film was taken post mortem and shows a very much shrivelled lobe on that side and a rather dense shadow of the other lobe. It is hard to judge density in postmortem specimens. The character of the radiation would usually be much softer and would make any shadow dense. I think, however, that it is more

dense than the average liver shadow, and that the left lobe is very much smaller than normal.

Dr. E. Lawrence Oliver: I think this question of syphilitic liver is interesting because we may get many different kinds of lesions in syphilis of the liver. In early syphilis we occasionally get benign hepatitis which gives rise to jaundice and may simulate catarrhal jaundice so that it may be impossible to tell the difference. Such benign syphilitic jaundice or hepatitis clears up spontaneously as a rule. Occasionally acute yellow atrophy is due to syphilis. Then there is the mild chronic hepatitis which occurs in syphilis and may last indefinitely without causing many symptoms. There is also the diffuse localized gummatous condition which may give rise to perihepatitis with broken-down gummata and scars throughout the liver. The gummata may be almost any size. They may be single or there may be miliary gummata scattered throughout the liver. There is also chronic interstitial heredosyphilis, which is well recognized. We have also perihepatitis, which is probably secondary to hepatitis. Which class this case would fall into it is hard to say. I think the most probable diagnosis is chronic hepatitis, and possibly a gumma.

Usually the chronic hepatitis cases respond very well to mercury with chalk as well as iodide. One may see results of treatment within a week. Some of the cases may have repeated attacks very closely simulating gallstone colic and yet show no gallstones at operation or autopsy. Of course gallstones may also occur in this disease.

I think arsphenamin is contraindicated in these cases in the beginning because they may get Herxheimer's reactions, which may make the condition much worse. It is better to start with potassium iodide and mercury and later follow it up with small doses of arsphenamin. Large doses are contraindicated because of the danger of making the patients rapidly worse.

Clinical Diagnoses (From Hospital Record)

Diagnoses on Transfer to the Eye and Ear Infirmary

Luetic hepatitis.
Chronic catarrh.
Acute mastoiditis.

Final Diagnoses at the Eye and Ear Infirmary

Acute mastoiditis.
Streptococcus septicemia.
Pneumonia.

Diagnosis on Death Report

Bronchial pneumonia.

Dr. Richard C. Cabot's Diagnosis

Streptococcus sepsis complicating an unknown chronic disease.

Anatomic Diagnoses

Syphilis.
Syphilitic hepatitis.
Operation wound, left mastoidectomy.
Bronchopneumonia, slight.
Arteriosclerosis, aortic.
Choledocholithiasis, intrahepatic.

Pathologic Discussion

At Staff Conference

Dr. Mallory: The pathologist in this country gets relatively few chances to see lues of the liver in an acute stage. As we see it at autopsy it is not ordinarily foreshadowed by any clinical finding or symptom. Out of some thirty cases of syphilis of the liver that I found in our records there were a small number of congenital cases in which the syphilis was important as a cause of the symptoms and perhaps of death, but out of eighteen adult cases only two had any symptoms that could be remotely attributed to liver disease. Many of them had the typical scarred "hepar lobatum"; a few of them had actual gummata. In none of them had it been suspected clinically at all. In all probability if this patient had not developed an acute middle ear the hepatitis would have gone through this early stage unrecognized and would have been picked up many years later as a completely healed lesion.

The liver in this case was slightly above normal weight. I think you can see that it consists wholly of a right lobe. The left lobe is reduced to a mass not much larger than a golf ball. The right lobe has undergone a compensatory hyperplasia. It weighed over 2000 grams, stretched half way down the pelvis, and had almost exactly the same appearance that showed in the films. So Dr. Holmes was quite right as to the size and shape of the liver. At the junction of the two lobes are four or five isolated necrotic foci, hard and rubbery in consistency, typical gummata.

This section is from the margin of one of the gummata. You can see a mass of completely homogeneous caseous material and below it a zone of dense fibrous tissue in which are a few persisting bile ducts and a very rare small island of liver cells. The greater part of the left lobe of the liver is made up of fibrous tissue. In general there was surprisingly little evidence of acute disease in spite of her persisting jaundice.

In this section from the hypertrophied right lobe is a miliary gumma about the size of a miliary tubercle. There are two or three other small gummata of about the same size scattered throughout this lobe. In general however the tissue shows only a moderate degree of congestion at the center of the lobules, some narrowing of the cords of liver cells and no evidence of acute hepatitis at all. The slight degree of

change that is present might conceivably be connected in some way with her lues. It might also be connected with the terminal streptococcus septicemia from which she died.

It is a little hard to see why she should have been jaundiced. The gummata and scar tissue around the bile ducts did not press upon them. The right lobe had become as large as a normal liver. She had enough liver tissue to excrete bile. I should think she might have passed through the whole episode without any jaundice at all. I am sure a large proportion of cases of gummata of the liver do.

DR. FREDERICK T. LORD: Were there any stones in the gall bladder?

DR. MALLORY: No.

DR. LORD: I should like to ask our distinguished guest what his experience has been in jaundiced cases with respect to the reliability of the Graham test or the occurrence of toxic manifestations.

DR. EVARTS A. GRAHAM: I was hoping that I might be an interested listener, Dr. Lord.

We find that in cases of patients who are markedly jaundiced, visualization or non-visualization of the gall bladder does not by any means indicate any disturbance of the gall bladder such as is ordinarily considered to be cholecystitis. That is to say there is a rather wide zone of error. There are cases of course, notably in the various types of cirrhosis of the liver associated with jaundice, in which the gall bladder is often said to be normal at operation or at autopsy when as a matter of fact it is edematous. If there is edema of the gall bladder of course there will be no visualization because there is no concentration of the dye. Was there any ascites there?

DR. MALLORY: No. The gall bladder appeared to be filled with very thick black bile. It certainly had been concentrating effectively within a fairly short period of time.

DR. GRAHAM: There are two other points that need some emphasis. One is that it is almost impossible to be sure that the gall bladder is normal at postmortem examination. I do not know how long after death this case was examined, but it is well known that most of the mucous membrane disappears within four or five hours after death, so that you cannot tell much from a microscopic examination. Of course there are those who think that the minor changes in the gall bladder up to the stage of well marked strawberry gall bladder are not of significance, but I cannot agree with them. Those things are missed at postmortem because you cannot see them unless you have a case that comes to autopsy immediately after death.

The other point is that in order to get visualization of the gall bladder it is necessary to have an unbroken chain in the course of events, one of which means excretion of the dye at a proper rate in order to have it concentrate within the proper time before it is passed out of the gall bladder again. In any case where there is a good deal of liver damage one naturally expects the rate of excretion to be slowed. That can be determined by making a colorimetric determination of the phenoltetraiodophthalein (iso-iodokon) still left in the blood stream after an hour or half an hour. Sometimes in jaundiced cases with a good deal of hepatitis it amounts to ten or twelve times the normal in a given space of time. Here there was not much hepatitis, but there must have been something faulty with the general mechanism of excretion of bile, because the patient was jaundiced.

In regard to Dr. Lord's other question, about the danger of performing a dye test in cases of jaundice, in the early days we used to lean over backward and advise against the use of the test in jaundice because we were fearful that something might happen, until so many others found that there was no real danger in such cases that we used it. I do not expect, however, that it will be so accurate in jaundiced patients for the reasons mentioned. Most of the Europeans who have written on this subject have no hesitancy in using it in cases of jaundice of all degrees.

DR. MALLORY: Would the increased density of the liver suggest at all, Dr. Holmes, that the dye was being held up in the liver?

DR. HOLMES: In the few cases that we have observed there is some increase in the density. In this particular case I should be more inclined to believe that it was due to the massive size of the right lobe, which is the lobe that we usually see.

DR. GRAHAM: Was the lobe overhanging the gall bladder so that it might not have been visible?

DR. MALLORY: Yes, it was.

DR. GRAHAM: Of course that might explain something too.

Do you know how long after death the postmortem was held?

DR. MALLORY: It was two hours, but we did not make microscopic examination of the gall bladder. I have become quite discouraged about the utility of doing that in postmortem specimens.

IN DR. CABOT'S CLASS

DR. MALLORY: There was in all the bile ducts within the liver and also within the gall bladder itself a good deal of gritty, dark green, semisolid bile pigment, that is, the beginning of gallstones, like small particles of sand. That is something that we commonly find only in the face of rather marked hemolytic jaundice. In splenic anemia, for instance, we find this sandlike material filling the bile ducts and gall bladder. On the other hand, we have no evidence here of anemia, and I think we can say there is no evidence of excessive hemolysis.

So far as the rest of the body is concerned there were the obvious results of the mastoid infection. The lateral sinus was not thrombosed. There was no abscess in the brain. There was a cellulitis. There was an inflammatory process in the lungs which I believe was the result of septic emboli rather than a pneumonia carried by the air passages. There were definite thrombi in many of the blood vessels showing hyperorganization.

One other unexpected lesion was an acute glomerular nephritis. The pair of kidneys weighed 500 grams and there was a definite lesion in each glomerulus. I think in all probability that was a very recent lesion. It might easily be only a week old, and I rather think it appeared simultaneously with the streptococcus infection, which I think was terminal in the case.

DR. CABOT: As you describe that liver I don't see how she could die of that.

DR. MALLORY: No, she died of sepsis, and if sepsis had not appeared she would have run the average course of syphilis of the liver as we see it in the hospital.

DR. CABOT: I wish you would put all this study together and reconstruct the story. Here is a lady who has skin trouble, and the next thing we know she is being operated for a mastoid; and then she dies, and syphilis is found.

DR. MALLORY: I have no idea what her skin trouble was. It may or may not have been connected with the lues. I rather think the itching she had with it was due to this genuine though subclinical jaundice, which had obviously been running for some time. These gummata of the liver must have been present for some months, and I think she had been having jaundice just below the clinically recognizable level for a considerable time, which might explain the itching; but if the sepsis had not intervened she would in all probability have been successfully treated for lues and that would have been the last we heard of her.

DR. FREMONT-SMITH: Two years before entry she had intense itching. Do you think that is possible?

DR. MALLORY: I think so. I think the gummata come in successive crops in certain instances, although that is guesswork. In a certain number of cases of gummata of the liver the patients do have jaundice during the acute stage. I have seen several patients operated upon, with diagnosis made certain by biopsy of the liver, who at the time of operation were definitely jaundiced. They have been sewed up, luetic treatment started and there has been recovery. That is not an extremely rare phenomenon.

DR. CABOT: I should like to know how they made that diagnosis in the ward. There is no record of how they got that, is there?

MISS PAINTER: No, except that the consultant, Dr. Chester Jones, made it.

DR. MALLORY: There is one other point perhaps worth mentioning in connection with luetic hepatitis. There is a very large group of liver cases in which jaundice develops in the course of treatment and it has never been perfectly certain what the cause of it is. It is interesting that here we have a case of syphilis of the liver where the jaundice cannot be adequately explained mechanically, yet she had had no treatment at all. One can find a certain number of interesting statistics bearing on the problem. Stokes at the Mayo Clinic a few years ago charted the seasonal incidence of all cases of jaundice among his luetic cases undergoing treatment. He found that the cases began to appear in November, gradually increased in number until January, then decreased. He plotted the incidence of catarrhal jaundice in the State of Minnesota in the same months and found a parallel curve. A German named Ruge got exactly similar figures in the German Marine Corps. So that there is a definite suggestion that lues may cause jaundice simply as a predisposing cause of catarrhal jaundice.

DR. FREMONT-SMITH: Would you be able to tell by observation whether it was arsenical or catarrhal?

DR. MALLORY: In either case you would have a picture of acute hepatitis which if severe enough would closely simulate acute yellow atrophy.

A STUDENT: How do you explain the nystagmus and headache?

DR. ALLMAN: We not infrequently get nystagmus even in acute otitis media, although we can explain it as a toxic condition from foci elsewhere or perilabyrinthitis. With a mastoid you can have headache; usually it is confined to the side involved, but you can have occipital headaches also, especially in a case like this. In very acute fulminating mastoid when it has started we get considerable reaction around that side of the head.

CASE 19312
CONGESTIVE HEART FAILURE WITH RAPID ONSET OF SEVERE JAUNDICE AND LATER DEATH

MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. HENRY D. STEBBINS*: This is the case of a sixty-one year old Italian chef. His complaints on admission were shortness of breath and swelling of the legs for one month. The history on the whole is unreliable because of the patient's mentality and language difficulty. According to his family he had a cerebral accident two years earlier and had shown definite mental changes ever since.

According to his own story he began three years before admission to have attacks of vomiting after meals, worse after a large meal. He had no vomiting of blood and no pain in his

*Recently senior interne on the East Medical service.

stomach with these attacks. It is not said how frequent they were or how long they lasted. He had a gastro-intestinal x-ray series at the Baker Memorial at that time, but no record of this can now be found. The family were told that they were negative. He had had some vomiting up to the time of entry, but not so severe as a year before admission, when he was studied for gastro-intestinal disease. Two years before admission he noticed failure of memory and some difficulty in orientation as to place. This evidently dated from the time of the "shock" described by the family. These symptoms had become progressively worse, especially the loss of memory. Four months before admission he had severe attacks of nocturnal dyspnea and orthopnea, awakening him at night and disappearing after half an hour. For four weeks before admission he had marked dyspnea on exertion and inability to sleep on fewer than three pillows. There was marked edema of the ankles at night, disappearing by morning. He had nocturia three or four times a night. Four weeks before admission he noticed dark but not bloody urine. He had occasional attacks of dizziness, but no itching or light colored stools. He had noticed no change in the color of his skin or sclerae before admission. He had lost fifty pounds in the three years since the onset of the vomiting.

The past and the family history were essentially negative. He had been a wine drinker for many years. He admitted some loss of vision lately. He denied venereal disease.

Examination revealed a plethoric, slightly obese Italian from Lombardy of sixty-one years half propped up in bed with considerable dyspnea, a very flushed and cyanotic face and cyanosis of the hands and feet. When first examined by electric light no icterus was noted; it was quite surprising the next morning to find slight but definite jaundice of the sclerae and skin. He had moderate retinal arteriosclerosis with slight nicking of the veins. There was marked dental sepsis. He had a marked barrel chest. The apex impulse of the heart was not felt. The heart was markedly enlarged to percussion. The heart sounds were of poor quality and distant. There were frequent extrasystoles and a protodiastolic gallop rhythm at the apex. The radial, temporal and brachial arteries were thickened. The blood pressure was 130/95. He had faint moist râles at both bases. The abdomen showed a three-centimeter umbilical hernia. The liver was made out at the costal margin. There was edema up to the midlumbar spine, very marked in both legs. A few internal hemorrhoids were felt.

The urine showed a slight trace of albumin and a slight trace of bile. There were occasional red cells and white cells in the sediment. There was no anemia. The red cell count was 5,600,000, the hemoglobin 80 per cent. The white cell count was 13,450. The smear was not remarkable, polymorphonuclears 72 per cent, lymphocytes 15 per cent, monocytes 10 per cent. The stools were examined five times during his stay and were reported as being brown on admission, tan four days and seven days later, brown with a positive guaiac six days before death and brown on the day of death. Nevertheless he was becoming progressively and very rapidly more and more jaundiced. His urine began to show a very large trace instead of a slight trace of bile. The liver function test showed 70 per cent dye retention on admission, with an icteric index of 100. The van den Bergh was 3.5 milligrams per 100 cubic centimeters and rose during the course of six days to 42 milligrams with an icteric index of 100!

An electrocardiogram showed auricular and ventricular premature beats, notched P_2 and right axis deviation. The Q-R-S complexes were one tenth of a second. The plate was thought to represent right bundle branch block.

A galactose tolerance test of liver function showed 8.2 grams of sugar excreted during the five hours of the test. (Normal: less than 3 grams.) The icteric index and the van den Bergh test were done again six days after the previous examination and about fourteen days after entry and had not increased. That is, his increase in jaundice took place entirely over the six days immediately following admission. The van den Bergh sixteen days after admission was 39 as compared with 42 before.

His general condition remained very much the same. He remained orthopneic and became gradually more irrational and disoriented. In spite of his severe jaundice and cardiac difficulty he seemed surprisingly well.

Three days before death he suddenly became worse, showed a rise in temperature and was more disoriented. He died with signs of increasing râles with some dullness at both lung bases.

Clinical Discussion

Dr. Stebbins: The patient was seen by Dr. Bland, who thought the liver condition not of cardiac origin. Dr. Chester Jones thought the anoxemia not related as a cause of the liver trouble, but that he probably had an underlying cirrhosis and possibly acute yellow atrophy. Dr. Chapman suggested carcinoma of the pancreas. Dr. Bland saw him after the electrocardiogram and suggested coronary occlusion, which he said would fit the electrocardiographic findings but was not necessarily required by them.

The discharge diagnosis was arteriosclerosis, chiefly cerebral, with arteriosclerotic heart disease and congestive failure, questionable coronary occlusion and probable cirrhosis of the liver with superimposed acute yellow atrophy.

Dr. Frederick T. Lord: The circulatory

aspects of this problem seem to be reasonably clear. He had arteriosclerotic heart disease with a suggestion of coronary block. Did I understand that there was a story of shock?

DR. STEBBINS: Yes sir, about two years before.

DR. LORD: That would fit in with arteriosclerosis.

The matter of chief interest was the explanation of the very striking jaundice, rapidly progressing to an extreme degree, which evidently was not obstructive because of the coloration of the stool. I did not know what the cause of the jaundice was. He had been a wine drinker and cirrhosis certainly should be considered, but the jaundice was rather too intense for a cirrhotic jaundice. Acute yellow atrophy was considered. I went to the autopsy without having any definite opinion with respect to the etiology of the intense jaundice.

DR. GEORGE W. HOLMES: The x-rays show an enlarged and dilated heart. The predominant portion of the enlargement is to the left in the region of the ventricle. There is an increase in the supracardiac shadow. You can see the barium in the esophagus outlining the aorta. While there may be a slight amount of dilatation, there is not enough to make a definite statement that the aorta was dilated in that region. The shape of the supracardiac shadow does however suggest some dilatation.

The changes in his lungs around the bronchi at the hilus I should think might very well be of cardiac origin. In the extreme upper portion of the film there is barium retention in the region of the larynx which is abnormal. We sometimes see such a retention in bulbar paralysis.

In the lateral view the interlobar septum is visible, but that probably has no clinical importance.

DR. TRACY B. MALLORY: How many days before death were those films taken?

DR. HOLMES: Fourteen days.

DR. MALLORY: He had slight jaundice from the day of entry.

DR. STEBBINS: It was very slight on the day of entry and rapidly increased in six days up to the maximum. He was in the hospital eighteen days.

DR. PAUL D. WHITE: Was it known whether he had had hypertension some years ago?

DR. STEBBINS: It is not mentioned in the record.

DR. WHITE: It is very possible that hypertensive heart failure may have played as much of a rôle as coronary disease. Hypertension and coronary thrombosis often combine in causing enlargement and failure of the heart. Certainly there is evidence here of a high degree of heart failure with indication that there had been primarily left ventricular failure because of the occurrence of suffocating attacks of dyspnea and of gallop rhythm. Did he have any murmurs?

DR. STEBBINS: None.

DR. WHITE: We see a good many patients with as much congestive failure as this man had or more without any jaundice even though the liver is much enlarged. Any appreciable jaundice is rare in my experience in congestive failure.

DR. EVARTS A. GRAHAM: What medication did he have before he came in?

DR. STEBBINS: None that we know about; but the history is very unreliable.

DR. WHITE: There is one other point. I have known of jaundice complicating pulmonary infarction in the presence of congestive failure, the jaundice resulting from a combination of factors, blood destruction in the infarct playing a part as well as poor liver function. If there had been active rheumatism in this case we might say that the liver damage had come from that, but there is no story of rheumatism here.

DR. MALLORY: Have you seen any cases of so-called cardiac cirrhosis of the liver in hypertensive heart diseases?

DR. WHITE: Not that I can recall now, although we do see instances where there are long continued heart failure and chronic hepatic congestion in hypertension. Cardiac cirrhosis of the liver is found in Pick's disease where the condition is very marked and very chronic, and in a few rheumatic mitral and tricuspid cases where the rheumatic infection itself may play a part in the liver cell destruction.

DR. MALLORY: My experience is similar in finding it fairly frequent in long standing rheumatic heart disease and relatively uncommon in hypertensive or arteriosclerotic heart disease.

A PHYSICIAN: May I ask whether the electrocardiogram showed right ventricular preponderance?

DR. WHITE: It was stated that the Q-R-S wave was abnormally wide, which indicates the presence of bundle branch block; this does not help us much so far as the relative size of the ventricle is concerned.

A SURGEON: Does jaundice in itself produce electrocardiographic changes?

DR. WHITE: No, simply slowing of the heart.

CLINICAL DIAGNOSES

Arteriosclerotic heart disease with congestive failure.
General and cerebral arteriosclerosis.
Cirrhosis and subacute atrophy of liver.
Bronchopneumonia.

ANATOMIC DIAGNOSES

Coronary sclerosis with occlusion, and multiple infarction of the heart.
Mural thrombi, right and left ventricles.
Cardiac hypertrophy and dilatation.
Chronic fibrous myocarditis.
Chronic fibrous adhesive pericarditis.
Multiple pulmonary infarcts.
Bronchopneumonia.

Pleural effusion, bilateral.
Chronic fibrous pleuritis, bilateral.
Acute central necrosis of liver, early.
Jaundice, marked.
Ascites.
Renal infarct.
Displaced left kidney.
Umbilical hernia.

PATHOLOGIC DISCUSSION

DR. MALLORY: The autopsy on this man showed severe heart damage. There was a blocking of branches of both the left and the right coronaries with multiple infarcts of varying ages. It included in the area of most recent infarction the interventricular septum, and thrombi were present on both sides, in the right ventricle and also in the left. Evidence of embolism was found in the general arterial circuit only in the kidneys, although the largest thrombi were present in the left ventricle. But the lung showed three separate large infarcts of varying age, one of which had almost liquefied and must have been present almost two weeks.

The liver was normal in size or slightly small, 1350 grams. On cross section it showed a slight degree of nutmeg marking, that is, reddening of the central portion of the lobules with intense discoloration with bile. Grossly it was not cirrhosis and did not look like a severe degree of chronic passive congestion. Microscopically there is a certain amount of widening of the sinusoids in the center of the lobules, some narrowing of the cords of liver cells, some evidence of liver cell degeneration, particularly evident from the very large amounts of bile in the center of the lobules. Also microscopically there is a slight but very definite acute intrahepatic cholangitis. The large bile ducts and gall bladder were grossly negative, but in the portal areas were accumulations of polymorphonuclears immediately around all the small bile ducts, just a suggestion of proliferation of those ducts. I think an intrahepatic cholangitis must be assumed, presumably an entirely separate affair from his heart disease. On the other hand its degree is so slight that I should think it would not cause anything like the extreme degree of jaundice which he showed. So I should be inclined to interpret this case as one in which there was a slight degree of impediment of the excretion of bile from this very early, very slight cholangitis, but in all probability there was an excessive need for the excretion of bile because of these very large pulmonary infarcts. In all probability very large amounts of bilirubin were being formed in those large areas of hemorrhagic infarction so that the slightly damaged liver was unable to take care of the excretion.

DR. HOLMES: I should have said that the gall bladder was not visualized after the dye. He had a positive Graham test.

DR. MALLORY: I should be interested in any other explanation of the jaundice that anyone has to offer.

DR. WHITE: Have you seen any other cases of this sort?

DR. MALLORY: We had one case that was presumably very similar, but that patient died nearly a month after his attack of jaundice, which had then almost entirely cleared up. He was an elderly man with marked jaundice following an attack of coronary thrombosis which at the time of autopsy had entirely cleared up.

DR. WHITE: I have seen cases of considerable jaundice complicating heart disease in which pulmonary infarction was the complication. The association of pulmonary infarction and jaundice has been taken as a matter of course by some observers, but I believe that the jaundice appears only in complicated cases.

DR. MALLORY: I have seen jaundice with pulmonary infarction before.

A SURGEON: Never in this degree, though.

DR. MALLORY: No. If he had had a normal liver he could have turned out all the bile in the liver.

DR. HOLMES: Where was that older infarct located?

DR. MALLORY: At the apex of the left ventricle. The more recent one was medial to that, involving the septum and the apex of the left ventricle.

DR. HOLMES: I meant the older pulmonary infarct.

DR. MALLORY: That was at the base of the left lung. The more recent one was in the apex of the right lung.

DR. HOLMES: The heart might have hidden the infarcts if they were in the base of the left lung.

DR. AUBREY O. HAMPTON: How large was the spleen?

DR. MALLORY: It weighed 225 grams,—approximately normal.

DR. HAMPTON: I should like to ask Dr. Holmes if he can explain the position of the gas bubble in the stomach.

DR. HOLMES: I do not know. We have been very much interested recently in the relation of the gas bubble in the fundus of the stomach to the diaphragm. Where there has been a considerable space, as in this case, we have usually found disease between the diaphragm and the fundus of the stomach. In a normal case we almost invariably have the gas in the fundus of the stomach in very close contact with the diaphragm. I do not know how to explain this case.

DR. WHITE: May I ask whether there was jaundice of the parts of the body that were edematous?

DR. STEBBINS: I do not think that we noticed this relationship.

DR. MALLORY: I have no recollection of it.

DR. WHITE: It has been observed by Meakins (*Jour. Clin. Invest.* 1927, IV: 135) that edematous parts of the body remain relatively white when the rest of the body is jaundiced.

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MEDICINE IN SOVIET RUSSIA

RUSSIA, an experimental station on a grand scale without parallel in history, is little known from the medical point of view. Recently the English neurologist, Sir James Purves-Stewart, visited the country and, fortunately, put down in the form of a rough diary his daily notes.* The book is enlightening for it gives a picture of Russia today as seen by a keen observer, who had had the energy to make a trip which was not by any means entirely one of pleasure.

Purves-Stewart entered Russia in the summer of 1932 without preconceived ideas other than those obtained by reading the usual newspaper propaganda. Some of the institutions which he examined merited his praise; by others he was not only disappointed but actually repulsed. He noted a gloomy, drab uniformity about the country, with free speech repressed and medicine practised without incentive or inspiration. He found no evidence of research worthy of the name. A certain effort, however, is being made to prevent disease. "Prophylactoria for the prevention of bodily disease; official abortoria for those women who desire to avoid motherhood; lavishly equipped maternity institutes for mothers who decide to have children; crêches for infants, polyclinics for the treatment of early and minor maladies; hospitals, infirmaries, and convalescent homes for persons who require more serious treatment; night homes for tuberculous town-workers still able to go to work in the daytime; rest-homes where workers can spend their official holidays: these and similar institutions are all provided by the State, free of cost."

On the other hand, in a land where there is no recognized church, marriage and divorce are merely a matter of applying to "a young woman clerk, seated at an office table, with a book of marriage registrations at one side and a divorce volume at the other", abortions are performed legally at the request of a patient, and in general the moral standard, considered from the point of view of a civilized country, is low, it does not seem as though this experiment were leading to Utopia. Doctors, in general, are poorly paid; there is no incentive to obtain consultations, and no physician can accept any reward for services outside of the regular routine. He must, moreover, live in two or three rooms in his house, even though he formerly owned the dwelling.

The picture in general is a drab one, for Purves-Stewart describes Russia as "a curious sort of purgatory, with an indescribable joyless atmosphere about it, different from that in any civilized country." There is, nevertheless, a spark of the unusual there which merits our attention. We are indebted to the author of this interesting book even though the picture of medical Russia is full of sadness.

*Purves-Stewart, Sir James. A Physician's Tour in Soviet Russia. New York: Frederick A. Stokes Co., 1933. 175 pages.

WHY NOT UNITE THE DENTAL AND MEDICAL PROFESSIONS MORE CLOSELY?

As indicated in the report of the Dental Educational Council of America on page 262 of this issue, there is a protest against the suggestion in the Report of the Commission on Medical Education that dentistry should be developed under medical education.

The Dental Council evidently feels that this suggestion implies the "subordination of dentistry" and claims for dentistry a separate profession which coördinates with the medical profession.

The facts seem to be that dentistry has long since emerged from a mechanical art and has taken an honorable position in medical practice.

Many dentists are convinced of the wisdom of having a medical degree with the advantages of a knowledge of all of the fundamental sciences upon which medicine is founded, and dental education now includes the etiology and pathology of the ills of mankind.

The fear that the requirement of a medical education by dentists would be to degrade one and exalt the other seems to be founded on apprehension rather than logic. In fact dentistry is a specialty in medicine very much as is orthopedics or ophthalmology and there seems to be abundant reason why dentists should have all the advantages of a general education with special training during and following medical courses. This is regarded as desirable in other specialties because, without full understanding of all of the problems of nutrition and disease, one may not serve his patients to the best advantage.

The medical profession has been ready to recognize the specialty of dentistry because of the importance of correcting those oral conditions which are recognized as important factors in general diseases. These often come under observation by dentists before presentation to medical practitioners. We have dental surgeons with technics which are not often used by general surgeons and there seems to be a growing conviction that dentists should become more definitely and fully recognized as members of the medical profession. Even though this inclusion may be delayed we predict that it will not be for long and that the change will be to the advantage of both professions. A union would enhance the influence of both. We do not see any degradation through the inclusion of dentistry in the medical curriculum.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Chute, Arthur L. M.D. Harvard University Medical School 1895. F.A.C.S. Associate Professor of Urology, Tufts College Medical School; Genito-Urinary Surgeon Emeritus to St. Elizabeth's Hospital; Consultant to various hospitals. His subject is "Obstruction of the Lower End of the Ureter Following Certain Bladder Operations." Page 219. Address: 352 Marlborough Street, Boston.

O'Hara, Dwight. B.S., M.D. Harvard University Medical School 1919. F.A.C.P. Junior Visiting Physician, Boston City Hospital. Professor of Preventive Medicine, Tufts College Medical School. His subject is "Pneumococcus Lobar Pneumonia." Page 222. Address: 520 Commonwealth Avenue, Boston.

Drinker, Philip. S.B., Ch.E. Associate Professor, Department of Industrial Hygiene, Harvard School of Public Health, Boston. Address: 55 Van Dyke Street, Boston. Associated with him is

Wilson, James L. M.D. Harvard University Medical School 1926. Instructor, Department of Pediatrics, Harvard Medical School. Address: Harvard Medical School, Boston. Their subject is "A Room-Sized Respirator." Page 227.

Colby, Fletcher H. B.S., M.D. Harvard University Medical School 1918. Associate Urologist, Massachusetts General Hospital. Assistant Urologist, Palmer Memorial and Huntington Memorial Hospitals. Assistant in Genito-Urinary Surgery, Harvard Medical School. His subject is "Urinary Tract Complications From Uterine Cancer." Page 231. Address: 205 Beacon Street, Boston.

Brooke, P. A. M.D. Harvard University Medical School 1926. Proctologist, City Hospital, Worcester, Mass. Gastro-Enterologist, Fairlawn Hospital, Worcester, Mass. His subject is "Erythema Nodosum-Like Lesions in Chronic Ulcerative Colitis." Page 233. Address: 477 Cambridge Street, Worcester, Mass.

Allen, Lyman. A.B., M.Sc., M.D. University of Vermont 1896. F.A.C.S. Professor of Surgery, University of Vermont College of Medicine. His subject is "Primary Torsion of the Great Omentum." Page 235. Address: 278 Main Street, Burlington, Vermont.

Rabinowitz, Louis. B.E.E. M.D. Tufts College Medical School 1932. Resident Physician (1933) Waltham Hospital. His subject is "Ulceration of the Duodenum From Actinomycotic Infection." Page 236. Address: 598 Main Street, Waltham, Mass.

Lakeman, Mary R. M.D. Boston University School of Medicine 1895. Epidemiologist, Massachusetts Department of Public Health. Her subject is "Menstrual Pain Among Industrial Women." Page 237. Address: 15 Ashburton Place, Boston.

Buck, Robert W. A.B., A.M., M.D. Harvard University Medical School 1921. Assistant Professor of Preventive Medicine, and Instructor in Physical Diagnosis, Tufts College Medical School. Physician, Medical Clinic, Boston Dispensary, Boston. His subject is "Physical Diagnosis Prior to Auenbrugger." Page 239. Address: 270 Commonwealth Avenue, Boston.

Sullivan, Elizabeth Ann. M.D. Tufts College Medical School 1914. Her subject is "Insulin Therapy in Post-Pellagrous Trophic Ulcers." Page 241. Address: 383 Broadway, Cambridge, Mass.

Wheat, Harry R. M.D. Tufts College Medical School 1913. F.A.C.S. Orthopaedic Surgeon, Springfield Hospital, Mary Lane Hospital, Ware, Mass., Cooley Dickinson Hospital, Northampton, Mass., and Franklin County Hospital, Greenfield. Chief of Fracture Service,

Springfield Hospital. Address: 20 Maple Street, Springfield, Mass. Associated with him is

HATHAWAY, LOUIS E. JR. B.A., M.D. Harvard University Medical School 1928. Junior Assistant Surgeon, Springfield Hospital. Associate Surgeon, Wesson Memorial Hospital, Springfield. Address: 20 Maple Street, Springfield, Mass. Their subject is "Brodie's Abscess of a Spinous Process." Page 243.

MARONEY, JOHN A. M.D. Tufts College Medical School 1931. Resident Surgeon Worcester City Hospital, Worcester, Mass. His subject is "Subcutaneous Emphysema Complicating Parturition." Page 245. Address: City Hospital, Worcester, Mass.

COMMUNITY AND NURSING STANDARDS FOR MATERNITY CARE

AT the request of the State Department of Public Health the Obstetrical Section of the Massachusetts Medical Society authorized the appointment of an Advisory Committee to the Department, at the Annual Meeting in 1932. This Committee was asked by the Department to recommend community and nursing standards for maternity care and, after careful consideration, submits the following.

FRANK A. PEMBERTON, M.D., Chairman
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LOUIS E. PHANEUF, M.D.

The Committee.

COMMUNITY AND NURSING STANDARDS FOR MATERNITY CARE

I. General Principles

1. The aim of adequate maternity care is the minimum of mental and physical discomfort for every woman during pregnancy; the maximum of mental and physical fitness at its termination, with the reward of a well baby and the knowledge whereby she may keep herself and her baby well.

2. Every organization and individual giving maternity care should make a conscientious and coördinated effort directly or indirectly to teach the community the value of and the need for medical and nursing care from the time pregnancy is suspected.

3. While independent centers giving prenatal care are at times necessary, it is important that such centers have a definite working agreement with hospital services for the reception of patients and their subsequent treatment.

4. Community planning for maternity care is necessary.

5. To clear up the considerable confusion, public health nursing is here defined.

> "Public health nursing is an organized community service rendered by graduate nurses to the individual, family and community. This service includes the interpretation and application of medical, sanitary and social procedures for the correction of defects, prevention of disease and the promotion of health, and may include skilled care of the sick in their homes."

(Definition by the National Organization for Public Health Nursing)

II. Organization of Community Resources

1. Each city and town or group of towns should have a local committee on maternity care which may be a sub-committee of a community health council, if such exists. This committee should be composed of representatives of the medical society, the hospital, the boards of public welfare and public health, the visiting nursing association and other appropriate professional and lay groups or individuals. This committee should serve as a clearing house for information, should endeavor to develop improved facilities for obstetrical care where these are deficient or lacking, and should stimulate the adoption of uniform standards by those engaged in maternity work.

2. In addition to private practitioners, beds for obstetrical care should be available in an adequate hospital or hospitals. The departments of public welfare should pay for adequate service to the indigent.

3. For those unable to pay for service individually there should be clinic service, preferably in a hospital giving obstetrical care, available for prenatal and postnatal service, to which physicians may send private patients if they so desire.

4. Through hospitals, visiting nursing associations and other appropriate community agencies, or through an association of two or more of these agencies, a continuous prenatal, delivery and postnatal service should be available.

III. Prenatal Nursing Care

If the patient is not under medical supervision, the nurse must make every effort to get the patient under the care of a physician as soon as possible. If the patient is unable to employ a physician, she should then be sent to an appropriate prenatal clinic.

Each organization offering prenatal nursing service should have a definite policy which has been passed upon by the local professional group as a whole or by the special committee. The visits by the nurse to the patient before she has placed herself under medical care should consist of efforts to get the patient under care, and

such instruction as may be necessary to accomplish this.

Home visits by a supervised public health nurse in accordance with the physician's instructions are desirable. If the doctor requests, such visits may include:

1. Checking up on the condition of the patient by noting the following:

Temperature, pulse, respiration
Inspection of mouth
Blood pressure
Condition of breasts and care of nipples
Movements of fetus
Presence of edema and varicosities

Danger signs:

Headache
Change in mental attitude
Dyspnoea
Epigastric pain
Nausea—vomiting (time of occurrence)
Vaginal discharge—character and amount
Bleeding
Constipation

Food
General hygiene
Urinalysis—for the presence of albumin or sugar.

The nurse's visit is of increased value if she sends a report of her findings and advice to the doctor or hospital caring for the patient.

2. Determining the needs of the patient in relation to her home, in order to help solve any problem that may affect the health or happiness of the expectant mother.

3. Advising about the preparation for delivery if home delivery is planned; helping to make any plans which may be necessary if the patient is to go to the hospital, such as placing children.

4. Arranging for supplementary care at time of delivery and during the postpartum period.

5. Instructing the patient regarding the symptoms which indicate the onset of labor and informing her of the importance of reporting to the doctor or the hospital if these come on. (Rupture of membranes, even without pains being present, calls for attendance of the doctor or visit to the hospital.)

IV. Nursing Delivery Care

At the time of delivery the duties of the public health nurse and attendants are to assist the physician and carry out his instructions. It must be recognized that the demands of obstetrical nursing care in the home are very exacting, and may materially interfere with the general public health nursing program. It is, therefore, well for the community to consider having available special arrangements for this type of nursing service, properly supervised.

V. After-Care Nursing

Care of patients after delivery should include careful inspection and supervision and every effort should be made to guard against complications. To this end, public health nursing care should include:

For the Mother:

a. A daily bed bath with warm water and soap.
b. Perineal cleansing and dressing according to approved method, after using bedpan and as often as necessary.
c. Daily inspection of breasts and nipples.
d. Temperature, pulse, respiration.
e. Other detailed observation of the patient with immediate report to the physician of any abnormalities or change in the patient's condition.
f. Instruction and demonstration of postpartum care for the patient delivered at home, to the person assuming responsibility for the care of the patient.

For Baby:

a. Daily bath.
b. Temperature taken daily if desired.
c. Inspection of eyes, mouth, cord.
d. Inspection of stools.
e. Training the mother to nurse her baby.
f. Regular weighing every other day to determine whether sufficient milk has been obtained.

MISCELLANY

A RADIO MESSAGE PREPARED AND SPONSORED BY THE COMMITTEE ON PUBLIC EDUCATION OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE DEPARTMENT OF PUBLIC HEALTH

Safer Maternity*

BY R. L. DENORMANDIE, M.D.

Each day someone whom we know is looking forward to the arrival of a new baby. It is such a common occurrence that we are apt to take it in much too casual a manner, and only when disaster occurs do we become alarmed and ask, "Could it have been prevented?"

To help reduce preventable disasters, to explain how women in any community may look to safer childbirth, this talk is brought to you by the Massachusetts Medical Society.

If we are to have safer maternity there are three essentials which every pregnant woman must have—medical supervision, adequate care at the birth, and sufficient nursing care after birth. These three essentials can only be had by the closest coöperation of patient, nurse and doctor.

*June 6, 1933, Station WBZ, 4:30 P.M.

When a woman has reason to think that a pregnancy has begun, she must at once go to a physician and place herself under his care. It is wrong for a patient to wait several months or until she feels ill before she seeks medical advice.

When the patient goes to the physician for the first time, she must be prepared to answer questions in regard to previous illnesses and operations. If she has had other pregnancies he will ask the details of them and the character and type of the labors. He should then make a complete examination. It is by this examination that the physician determines the patient's condition. It is a patient's right to have such an examination and if it is not requested she should demand it.

Following this first examination the physician will ask the patient to return for other examinations at least once a month during the first six months, then every three weeks, two weeks, and the last month he may ask her to come each week. It is only by frequent visits that he can follow her condition and discover early any symptoms of threatening danger. A dual responsibility is present. The physician must make clear to the patient the need for supervision and the patient must carry out faithfully the physician's orders. The physician on his part must at each visit carry out the well-recognized routines. Merely looking at and talking with the patient does not make for safer maternity.

As pregnancy advances and before labor begins the competent physician has so carefully examined his patient that he can usually with assurance say that she may look forward to a normal labor. In a few cases where an operation may be necessary, arrangements can at once be made. It is only by this careful medical supervision of every pregnancy that the number of emergency operations can be reduced. If we are to have safer maternity, rushing patients to hospitals at the last moment, except in relatively few cases where something impossible to foresee occurs, must be reduced to the minimum.

The second essential for safer maternity is adequate care at the time of birth. In recent years much emphasis has been put on the medical supervision of the patient during her pregnancy almost to the exclusion of the importance of the type of care which the patient receives at birth. No matter how good the care during pregnancy may have been, if the care at delivery is inadequate or careless the patient suffers or may die unnecessarily.

In the large majority of cases nature accomplishes the delivery satisfactorily. It is in a small minority of cases where nature fails that disasters occur. Some undoubtedly could be prevented.

Adequate care at delivery presupposes that the physician in charge has had good training in obstetrical work and that he carries out to the letter the careful technique he is taught in the medical school. It is admitted that the training some physicians receive is not sufficient to deal satisfactorily with complicated cases and for that reason in each community there should be at least one physician properly trained to meet serious complications.

Whether the birth is to take place at home or in a hospital depends first upon the probability of its being without complications, and secondly upon the hospital and its accessibility. Difficult cases are more safely looked after in well-equipped maternity hospitals. If, however, the hospital is poorly equipped, the home is much safer. The first condition depends upon the physician's ability and willingness to study each of his cases individually and determine well before labor starts the probability of its being normal. The second depends upon the community's demand for an up-to-date hospital.

The point to be remembered and insisted upon is that by careful, continuous medical supervision the difficult or complicated cases in childbirth can almost always be discovered early and satisfactorily treated.

Upon the nursing care the patient receives after delivery depends oftentimes her complete recovery. This nursing care varies from the well-trained maternity nurse to the friendly neighbor. In many communities the visiting nurse fills the need. The well-supervised visiting nurse is doing in rural counties splendid work for safer maternity, and where the trained private duty nurse is not available is of tremendous help.

It is unfortunate that in speaking of safer maternity one must speak of the number of deaths that occur each year. Until we appreciate that some of these deaths are preventable and demand that they be prevented there will be no great improvement in the situation. It is idle to say that all deaths are preventable, for with our present medical knowledge it is not true. A preventable death means that had the patient had reasonably adequate medical care during pregnancy and delivery, the death would not have occurred. A death that is not preventable means an accident over which we have no control or that some unforeseen complication developed.

In any series of maternal deaths, septicemia (sometimes called blood poisoning or childbed fever) and eclampsia or convulsions account for nearly half the total number. The deaths from childbed fever have not diminished as they should. The cause of many of these deaths is lack of surgical cleanliness and a careful technique at the time of delivery. In other words, the patient becomes infected. All deaths from sepsis are not caused by carelessness, because in some cases the patient has the cause of her infection within her at the time of delivery, and the strain of labor makes her unable to resist the progress of the poison. But it is a fact that careless and frequent examinations during labor, and bungling operation,

are a real cause for this continued high rate of death from sepsis.

This situation can be helped by improving the teaching of obstetrics as was suggested at the recent White House Conference on Child Health and Protection, and by strengthening the powers of the boards of registration in medicine so that only students of recognized schools will be allowed to practice. Even with better teaching of obstetrics, safer maternity will not come unless every physician who looks after women in labor has carried out fully the precautions to avoid infection which he has been taught.

The responsibility for deaths from childbed fever lies chiefly with the physician, but in the deaths from convulsions or eclampsia much depends upon the early coöperation of the patient. In many communities these deaths have been greatly reduced, and it has come from continual oversight of the patient, in many cases in conjunction with the visiting nurse. Signs of impending trouble are thereby discovered early and intensive treatment is begun, and this terrible complication is overcome.

Many of the deaths from childbed fever and convulsions must be regarded as preventable. Someone has failed in some way or other to carry out the fundamentals of good care that each pregnant woman should have.

Many women are unable to have the care of a private physician and those women must early in pregnancy become enrolled in well-organized clinics where their condition will be carefully supervised. Those women who are living in remote rural areas must make every effort to have medical care. If anything abnormal arises even though it appears trivial, it is far better to go to a hospital unnecessarily than to remain at home unattended.

Safer maternity then depends upon continual medical supervision with complete coöperation between the doctor and the patient. Adequate care at delivery and, in those cases which may be difficult and complicated, early planning for admission to the best hospital that can be found.

Many of the maternal deaths are preventable, and until every community realizes this and until every woman has adequate medical care we shall not have done all we can for a safer maternity.

RESOLUTIONS RESPECTING PREPAID HOSPITALIZATION PLANS BY THE STAFF OF THE NEWTON HOSPITAL

July 12, 1933.

At a meeting of the Staff of the Newton Hospital held on June 26, 1933, it was unanimously voted to disapprove of both the A and B Plans of prepaid hospitalization set forth by the "Greater Boston Hospitalization Association, Inc."

This vote was made after an extended explanation of the plan and after full discussion by the members of the Staff. The principal reasons for disapproval are the following:

1. That the plan, in the opinion of the Staff, is definitely a long step toward the socialization of medicine.
2. That it might be a difficult matter to withdraw from the plan if it were so desired.
3. That the public, if once educated to expect hospitalization at such reduced rates, will be unable to understand the necessity for resetting the rates when times are better.
4. That the tendency would be for those so insured to seek hospital care for minor ailments and to remain for the whole period whether or not it was necessary.
5. If and when prosperity returns, there would be no necessity for such a plan and that, with the worst of the depression now over, the time is most inopportune to launch such a radical project.

Signed:

HENRY F. KEEVER,
Secy. Exec. Com. of Staff.

NEWS RELEASE BY THE AMERICAN PUBLIC HEALTH ASSOCIATION

New York, July 26 — "Suicidal" was the word used here today by Dr. Kendall Emerson to describe the cutting of government health department budgets to the extent of impairing their service. Dr. Emerson is the acting executive secretary of the American Public Health Association, and he spoke over the National Farm and Home radio network.

"The rule usually followed in effecting public economies is to make cuts where party or personal interests will suffer least," said Dr. Emerson. "Precious little attention is paid to the relative importance of the various functions of government, a great deal to the importance of the political neck upon which the axe of economy is to fall.

"We are all convinced that governments can be run on far less than some have led us to believe was necessary. Anyone who attempts to check the rising tide of economy will meet with instant popular disapproval. But we must separate the essential from the non-essential. Above all we must have protection against the menace of epidemic diseases which holds in itself far more public danger than the peril that lies in unjust laws, fire and banditry, all combined."

Dr. Emerson deplored the fact that the nature of public health protection is such that the individual goes about his business oblivious of what it costs in brain, energy and skill. "The public health service spends little time on publicity," stated Dr. Emerson. "Its thoughts are bent on scientific, not political considerations. It is the least advertised of all our public services, yet it is the first of the fundamental necessities of government if we are to have healthy lives, happy

homes, living children and grandparents in every family.

"The public health service wears no striking uniform, it does not break the slumber of the night with the clang of the fire patrol or the shriek of the siren. Yet without it modern life could not endure. Quietly and unobtrusively it goes about supplying the community with pure water uncontaminated with the germs of disease; it disposes of the city's waste and controls its smoke and dirt; it supervises milk and other foods and assures safety from the infections that such supplies may carry. Through the eternal vigilance of its quarantine it renders cities free from devastating plague, from typhus, cholera, yellow fever and the like. Never sleeping, it guards the child from diphtheria, scarlet and typhoid fever and other frequently fatal contagious diseases.

"Despite its vital importance the public health service has always been underpaid and understaffed. Yet its achievements have been beyond all praise. Had it shown extravagance or wastefulness comparable to that of other government departments it should submit without protest to the reductions inevitable in times of financial stress. But it has not laid itself open to the charge. On its merits it has the right to demand from all good citizens such generous support that its basic services shall remain unhampered.

"If we people but knew the risk of decreased health protection, we would approve reduction in every other department of government before allowing ourselves to be driven to the suicidal procedure of impairing the service that watches with unslumbering vigilance over our comfort, our health and our children's lives."

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1932 AND SEVEN YEAR AVERAGE

MONTH ENDING JULY 22, 1933

Diseases	1933					1932			
	Week ending July 1	Week ending July 8	Week ending July 15	Week ending July 22	Average cases reported for week corresponding to July 22 for past seven years	Week ending July 2	Week ending July 9	Week ending July 16	Week ending July 23
Cerebrospinal Men.	—	—	1	1	1	—	—	—	1
Chicken Pox	64	75	43	29	16	90	24	68	118
Conjunctivitis Inf.	—	—	—	—	—	—	2	—	—
Diphtheria	4	2	6	7	10	4	1	1	9
Encephalitis Epid.	—	—	—	—	—	—	—	—	2
German Measles	2	2	1	—	2	6	2	2	4
Hookworm Infection	—	—	1	—	—	—	—	—	—
Influenza	1	1	4	1	2	2	1	5	7
Measles	99	58	38	40	53	133	100	66	121
Mumps	23	10	27	18	13	39	21	20	77
Paratyphoid Fever	—	—	—	2	—	1	—	—	1
Pneumonia (Broncho)	10	14	6	7	11	7	9	12	40
Pneumonia (Lobar)	9	6	8	6	11	7	12	15	49
Poliomyelitis	2	—	1	2	3	1	1	—	1
Scarlet Fever	33	23	9	25	13	34	17	25	87
Septic Sore Throat	2	2	—	1	—	—	—	1	2
Smallpox	—	—	—	—	—	—	—	—	4
Tetanus	—	—	—	—	—	—	—	1	—
Tuberculosis (Pul.)	25	21	30	13	31	27	25	29	34
Tuberculosis (O. F.)	1	1	1	4	3	5	—	1	6
Typhoid Fever	1	—	5	2	2	1	2	2	1
Undulant Fever	1	—	—	—	—	1	—	—	2
Whooping Cough	31	38	37	41	55	98	110	82	106
Gonorrhea	22	14	31	21	20	37	22	33	25
Syphilis	46	25	32	27	26	37	22	41	39

Remarks: No cases of Asiatic cholera, glanders, plague, or yellow fever during the past seven years.

MORTALITY RATES

Telegraphic returns from 85 cities with a total population of thirty-seven million for the week ending July 15, indicate a mortality rate of 9.6 as against a rate of 10.1 for the corresponding week of last year. The highest rate (22.0) appears for El Paso, Texas, and the lowest (5.4) for Akron, Ohio. The highest infant mortality rate (14.8) appears for Evansville, Ind., and the lowest for Akron, Ohio, Duluth, Minn., Kansas City, Kans., Long Beach, Calif., Schenectady, N. Y., Somerville, Mass., Spokane, Wash., and Waterbury, Conn., which reported no infant mortality.

The annual rate for 85 cities is 11.4 for the twenty-eight weeks of 1933, as against a rate of 11.8 for the corresponding period of the previous year.—*Bureau of the Census.*

CORRESPONDENCE

A PROTEST AGAINST THE REPORT OF THE COMMISSION ON MEDICAL EDUCATION

The Dental Educational Council of America
Office of the Secretary
1108 Union Trust Building
Providence, R. I.

June 30, 1933.

Editor, *New England Journal of Medicine,*

At a recent meeting of the Dental Educational Council of America the Council adopted the following minute relative to the final report of the Commission on Medical Education, and the secretary was instructed to send you a copy thereof, with the hope that you may publish it.

> "The Dental Educational Council of America has given special attention to the comment on dentistry on pages 216-217 of the *Final Report of the Commission on Medical Education* (December 1932). Included in the Commission's comment is the expressed opinion that "dentistry should be developed *under* medical education". No reasons for this intended subordination of dentistry are given excepting the general opinions that (a) "It would seem logical"; (b) "would be consistent with university principles which no longer recognize the artificial separation of fields of knowledge"; and (c) "would go far toward establishing a highly desirable and valuable correlation of the professional training of these two closely related fields of practice" (medicine and dentistry).
>
> These suggestions for the subjugation of the dental profession are neither impressive nor persuasive. To the Dental Educational Council, cognizant of the related facts in the history of both medicine and dentistry, the proposed development of dentistry "*under*" medical education, in the United States, (a) would seem to be illogical; (b) would be inconsistent with university principles which clearly recognize the public necessity for the self-determination of, and for appropriate differences in education for, the various professions; and (c) instead of correlating the professional training in medicine and dentistry, would degrade one profession for the exaltation of the other, and also demoralize the service of the practitioners thus dishonored.
>
> There should be intimate *coördination* between the *principles* and procedures of education for medical practice and for dental practice. Although remaining *independent*, these two forms of health-service education should be made more closely *interdependent* for the betterment of each. The *Council and the dental schools have long promoted this mutual helpfulness.* The strengthening of this constructive educational development, in the public interest, appeals to us as a far more important *interprofessional objective* than the relegation of one profession to a position of *enforced inferiority.* For the attainment of this worthier purpose, we pledge the cordial interest and effective coöperation of the faculties of the dental schools in the United States."

Thank you for your interest in this relation.

Sincerely yours,

ALBERT L. MIDGLEY, *Secretary.*

THE PREDATORY GROUP AND THE LOW INCOME GROUP

July 24, 1933.

Editor, *New England Journal of Medicine,*

Dr. Rorem approaches what seems to me to be one of the important phases in considering the cost of medical care.

It is understood that this committee of fifty was not expected to study the question of how the underpaid class was to obtain the money but how they could spend it to advantage.

A committee of fifty to investigate the economics of the condition would be more valuable, but it is doubted if such a committee would receive much financial backing.

In 1921, a skillful oculist who had served the Infirmary many years said he was surprised and pleased to receive in his office many patients, and those in their economic group, whom he had treated at the Infirmary.

Said they seemed glad to pay him! No doubt they were. These were the days when the working people were prosperous. If they could be protected from the machination of what President Theodore Roosevelt called "The predatory group" they would

be again able and pleased to pay the physician's fees.

If such a protection could be attained there would be much less reason to consider insurance either voluntary or compulsory.

Respectfully yours,
W. H. MERRILL.

A CRITICISM OF THE HOSPITALIZATION PLANS

July 25, 1933.

Editor, *New England Journal of Medicine*,

With reference to the Greater Boston Hospitalization Plan as published in the *Journal* of July 13, may I say that, if adopted, it would work an injustice on physicians without hospital affiliations and of these I believe there are about nine hundred in Greater Boston. To make this plan fair, some provision should be made for all registered physicians whether they have hospital affiliations or not.

Moreover, Plan A or Plan B would in time conflict with the workings of the Workmen's Compensation Act which now provides for payment of medical services for injuries arising from employment, without discriminating against physicians having no hospital affiliations.

Why include accidents under Plan A or Plan B? Wouldn't this in time enable unscrupulous employers to sidestep their obligations under the Workmen's Compensation Act and throw the entire cost of medical care on the wage earner under the Greater Boston Hospitalization Plan?

Yours very truly,
GAETANO PRAINO, M.D.

THE TREATMENT OF IVY POISONING

Mr. Editor:

Every year at this time somebody comes forward with suggestions for the relief of ivy poisoning.

Every year appear suggestions for the relief of mild cases by the application of cloths wrung out in various solutions.

It is not my purpose to claim that relief cannot be obtained in this manner but I do claim that I have found a better, quicker, more effective remedy which can be applied without constant renewal which will in no way hinder the normal activities of the person affected which *instantly* stops the intolerable itching and burning and thereby the spread of the eruption over unaffected parts as the result of rubbing and scratching.

Years ago poisoned on both hands and arms nearly to the shoulders, unable to sleep, having in vain tried to minimize the torture, and it is torture, by using cloths moistened by various solutions, advised by friendly physicians, I was almost ready to abandon my practice temporarily, when one day in desperation I poured a bottle of flexible collodion over the affected parts. The relief was instantaneous, the itching and burning entirely ceased, there was no further spread of the inflammation and even the swelling which was decidedly marked began at once to diminish and, although the eruption persisted for the normal period of a week, it caused no trouble and when the collodion, several times renewed, finally peeled off it was gone.

I live in a district filled with poison ivy. I live during the summer where every stone wall, and there are many, is covered with it.

Year after year I see the beginning of an outbreak. Year after year a few drops of collodion control it.

I have prescribed this treatment time after time and never, so far as I am aware, has it failed to give relief.

I have not succeeded in extending our compulsory vaccination law to cover our private schools, but I do claim that I have discovered the as yet quickest and surest relief for poison ivy infection and on that, and that alone, must base my claim for immortality. Sincerely yours,

SAMUEL B. WOODWARD.

RECENT DEATH

POTTER — JOHN CLAUDE POTTER, M.D., died in Framingham, Mass., July 30, 1933. He was born in Leslie, Michigan, in 1879 and graduated from the Baltimore Medical College in 1905. He joined the Massachusetts Medical Society in 1907 and practised in Framingham for fifteen years. He then moved to Sanford, Florida, and later to San Francisco, California. He returned to Framingham about six months ago and resumed practise there.

He is survived by his widow, who is now in California, and a son, John Potter.

OBITUARY

RESOLUTION ADOPTED BY THE SECTION OF TUBERCULOSIS OF THE MASSACHUSETTS MEDICAL SOCIETY

We record with deep regret the death on May 28, 1933, at the age of eighty-four, of Dr. Edward O. Otis, active throughout many years as a leader, with clear vision, sound judgment and the spirit of the pioneer, in the promotion of measures for the prevention and control of tuberculosis.

Committee
FREDERICK T. LORD, M.D., *Chairman*,
EDWARD D. CHURCHILL, M.D.,
DONALD S. KING, M.D.

NOTICE

CORRECTION

In the Correspondence by Dr. Frederic Jay Cotton entitled "A Criticism and a Remedy" which appeared on page 216, issue of July 27, the fifth paragraph should have read:

In cross-examination absolutely unessential, half-understood technical details are apt to occupy the foreground.

REPORT OF MEETING

THE PHYSICIANS' ALLIANCE

12 Charlesgate West
Boston, Mass.

At the meeting of the Physicians' Alliance on July 6, 1933, at Inter-Colonial Hall, Boston, the following paper "A Second Call for Action" was presented by Dr. Henry M. Landesman:

Fellow Colleagues: This Medical Society has been organized to endeavor to accomplish certain necessary and sorely needed reforms pertaining to the practice of medicine.

We are indeed happy and proud of the fact that the traditions of the physicians as laid down by the "Oath of Hippocrates" are still a part of the heart and soul of every doctor. Naturally he has been too busy with the remarkable progress and achievements in the care and treatment of patients, and thereby restoring health, to take cognizance of the dark clouds and storms hovering over his head.

Our medical societies have been too busy with the great developments in medicine and surgery to participate in other matters that, perhaps, have not been brought to their attention. We have arrived at the parting of the ways. We must choose carefully the correct road, or we will become state employees, and then, also, poor public and physician!

The practice of medicine today is in a most deplorable condition, and we see no one raise his hand or voice to improve it. We have just been handed an abominable document by a body of august gentlemen (many of whom were misfits for this work) and who, I believe, should be Oslerized for this perpetration; for the "Report on Medical Costs" made a bad case worse, and many members of this commission outdid themselves in making their work and the expense it cost, futile and useless. Physicians are not earning a living now.

Now, gentlemen, we have work to do, some little house cleaning, but a great deal of anabolic medical construction.

Has the Committee on the Costs of Medical Care taken into consideration what physicians have done in preventive medicine? Did its members for a moment stop to consider the millions and even billions of dollars, lives, blindness, and suffering saved and eliminated for the people of this country and the world by the ever-watchful and continually studying physician? I am afraid they missed this. Have they looked into the fees paid to lawyers for their work in accident cases and compared them with the fee the physician received and then compared the work actually done by both? It does not seem so.

Did this Committee figure the total amount paid to attorneys during a year and then compare it with all the expenses charged up to the physicians? I am sure, from the figures of the Report, that they did not. Who started this bugaboo about Medical Costs, anyway? Why didn't this Committee ascertain the total of charity and semi-charity done and given by the physicians in this country? It has always been done gladly, pleasantly, and efficiently at all times of day and night. I hope this Committee has, at least, at this time realized what a rank injustice, havoc and desolation it has brought upon the finest, most human, most generous and philanthropic set of men and women. It was certainly disgraceful, for it has stirred up much ill feeling toward the medical profession, and it was absolutely uncalled for. Have Jenner, Leeuwenhoek, Lister, Pasteur, Koch, Semmelweis, Kitasato, Yersin, Gorgas, Plotz, and Ehrlich lived in vain?

Now I want to discuss briefly the predominating matters which we wish to take up.

Dispensaries, hospitals, out-patient departments, health and welfare clinics, insurance and obstetric clinics, etc., seem to have taken on a stride without looking back to see what has happened. Their main desire is to report the tremendous number of patients treated during the fiscal year. The superintendents seem to have forgotten that there are physicians on their staffs who actually earn their living outside of the hospitals and clinics, and that when patients can afford to go to private physicians, but come to these free clinics, they deprive physicians of their livelihood.

Patients have become very callous and at times ask their physicians on which day they are at the clinics, so that they can come there and be treated, gratis. Physicians have never neglected or refused to treat the poor and indigent. They have always rendered service in the past, and will always do so in the future.

I am convinced that it is up to the directors and heads of clinics to ascertain through their social service departments whether those applying for free treatments are not landowners, well-to-do workers, earning fat salaries, driving around in expensive automobiles, or merchants. *This they must do.* Clinics are overflooded, overhead has increased, physicians are deprived of legitimate practice, and above all, this has done nothing for the hospitals and dispensaries. Their ultimate cry is that they are running a large deficit, and they even beg physicians, from whom patients have been taken away, to contribute to maintain these institutions. Application of careful humanitarian and business principles can do much to help both.

Another matter of great import to the medical men and women is industrial accident and tort

work. There are a number of well-paid physicians at the head of these industrial accident insurance companies who seem to have forgotten that the rest of the profession must earn a living. A maximum fee of $5.00 for first aid, $2.00 for office and $3.00 for house visits is made, and it is a case of take it or leave it, for the well-paid medical director says, "That is enough." I want to suggest to these directors that they will be responsible if the medical men and women continue lethargic, to bring about state medicine. Then how much salary will they receive? I prescribe for them that they had better put on their glasses, remove the cotton from their ears, and keep an ear to the ground and listen in. These industrial insurance companies have developed a new wrinkle, neglecting physicians' bills for weeks and months. In tort work, the physician is called in to do all sorts of work at any and all hours of day and night. Reports are made out to insurance companies, to lawyers, and again records and reports, examinations are held, and then cases are settled. Does the doctor hear about the settlements? Weeks and months and years sometimes go by, and he learns about them only by meeting the patient or lawyer. The original bills usually dwindle to almost nothing by the law of shrinkage in the possessor's hands, be he lawyer or patient. Quite frequently the lawyer or patient promises to send the check, or says he happened to use his money, and will pay it later (occasionally never).

House Bill 519 was introduced by me last December. The physicians, hospitals and nurses whom it tried to protect did not take enough interest in it to put it over, and insurance company lobbyists and the above type of lawyers managed finally to strangle it. A little more interest and activity on the part of physicians, hospitals and nurses would have put this bill over. I may say here that the hospitals fostered a bill of their own, Senate Bill 124, which took care of hospitals alone, and they were reluctant to withdraw their bill and pull with us. A rather mean oversight on the part of the hospital contingent. Their bill likewise was defeated.

I do not wish to leave any impression in your minds that I am criticizing the County Society, the Massachusetts Medical Society, or the American Medical Association. These institutions are carrying on magnificent, progressive, and inspiring leadership in the advancement of medicine and surgery and have not realized that there is such an unknown insignificant phenomenon as an income for the doctor, and have not taken the necessary time to look into the subject. But this must be done, and immediately, for the depression is now possibly at an end, but the changes in medical education, medical procedure, the little business ability required by physicians, and also the utter neglect and carelessness of patients in the payment of their bills to the doctors must be attended to, and now.

State medicine would be good under a socialistic government, otherwise we do not believe it would be successful, and we, therefore, do not desire it; for the public and the physicians will only suffer through another *noble experiment*.

Physicians have developed much competition in obstetrics, for several hospitals will deliver and care for patients for 10 to 14 days for a total expense of $57.00. Appendectomies and hernias are done for $25.00 to $50.00. T. and A.'s are done for $7.50 to $10.00. I could go on, but what is the use? We study nine or ten years at a tremendous cost and for what? And lawyers study five years and seem to get everything.

In conclusion, I wish to say that the various health and welfare centers, insurance companies, dispensary and various hospital clinics must not jeopardize the livelihood of physicians by treating patients who can well afford to pay for their treatment; it gets them nowhere, and will only obliterate many of these institutions.

Industrial medical directors should realize that the more unreasonable and tyrannical they become, the harder will they themselves fall and suffer. Accident companies who ask favors from physicians in reports of accidents and expect courteous treatment must reciprocate with these physicians by informing them or aiding them, to some extent, so that they may receive their compensations for well-earned services when cases are settled.

Lawyers should realize that the physician is an important cog in tort work, and that when cases are settled, the physician who has treated the patient, his client, and brought the patient back to as near normal health as possible, should upon the settlement of a case be paid his bill at the same time that the patient and the lawyer are paid.

The public should be gradually persuaded and taught that the doctor's bill for services rendered is not one that should be paid last or never; it is entitled to as much respect and consideration, if not even more, than any other he has to pay.

And last but not least, these changes are necessary and only physicians, by a definite and coherent effort can bring this about. It is, therefore, up to us to carry these through.

We have definite plans, methods of procedure for their successful accomplishment, and all we need is the moral support of county and state medical societies and your individual interest and activity to replace the practice of medicine on the pedestal where it honorably and rightfully belongs, with the subsequent result, a living income for the physician and his family.

After the delivery of the paper a lengthy discussion took place in which the physicians seemed to agree that something is fundamentally wrong with the practice of medicine today, that physicians are unable to earn a living, that institutions such as hospitals, clinics, insurance dispensaries, etc., are treating patients who can well afford to pay for their

treatments, and that all physicians are willing to do any genuine charity work in their private practice at all times. A trend of medicine and of conditions today is shown by the following figures: At the Boston City Hospital in 1917 there were 197 obstetric cases. This year there will probably be 4,000 cases.

Many complained bitterly because of the utter disregard by some lawyers of the physicians' reasonable bills rendered for accident work after cases had been settled. A few seemed to favor Plans A and B, of the Boston Hospitalization Plans, but most of the men opposed these plans for they feared that the practice of medicine would take on an entirely different aspect, because the individuality of physicians and surgeons would be lost. They felt that the physicians and surgeons would be making all sort of sacrifices as set forth in "Arrowsmith" and someone else would get the credit, that the physician would really become a sort of orderly in a hospital, that the most beautiful traditions of the physician would be lost, that the public would go through another unfortunate experiment, and further that the figures of physicians who are actually associated with hospitals would be nearer 30%. Many were of the opinion that medicine on an insurance basis could not be a success, and that State Medicine would be abhorrent both for the physician and the public.

The following members discussed the paper: Drs. Charles L. Knight, Maurice Barron, F. M. Kennison, S. Goodman, David Stearns, K. C. Rosen, A. Thurman, Max Ritvo, B. Parvey, E. D. Whitehouse and B. Zuckerman.

N. T. Bresnick, M.D., *Secretary.*

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

August 10, 11, 12—The American Delegation to the International Goiter Conference will be held at Berne, Switzerland. Address Dr. James H. Means, Massachusetts General Hospital, Boston, Mass.

August 13-27—The Fifth International Medical Post-Graduate Courses of the Tomarkin Foundation will be held in St. Moritz, Switzerland. The subjects in these courses are Allergic Diseases, Diseases of the Blood, Climatology, Rheumatism and Arthritis and Diseases of Metabolism. Address Chr. Jilli, St. Moritz.

September 11-15—The Twelfth Annual Scientific and Clinical Session of the American Congress of Physical Therapy will be held at the Palmer House, Chicago. Address the Executive Secretary, 30 North Michigan Avenue, Chicago.

September 16—The American Board of Otolaryngology will hold an examination in Boston just prior to the meeting of the American Academy of Ophthalmology and Otolaryngology. Prospective applicants for certificate should address the Secretary, Dr. W. P. Wherry, 1500 Medical Arts Building, Omaha, Nebraska.

September 19, 20, 21—The Connecticut Clinical Congress will meet at New Haven. Subjects for consideration: Diseases of the Blood, Diet in Disease, Industrial Injuries and Neuroses. Lectures, Demonstrations, Group Conferences.

September 25-30—The American Congress of Radiology will be held at the Palmer House, Chicago. For particulars write to Dr. Benjamin H. Orndoff, 2561 North Clark Street, Chicago.

September 29 and 30—New England Surgical Society at Boston.

October 9-12—The American Public Health Association will hold its sixty-second annual meeting at Indianapolis. For details on the scientific program write to the American Public Health Association, 450 Seventh Avenue, New York, N. Y.

October 9-13—The Clinical Congress of the American College of Surgeons will hold its twenty-third annual session at Chicago. Headquarters for the Congress will be at the Stevens Hotel.

October 16, 17, 18—Massachusetts State Nurses' Association, Hotel Kimball, Springfield, Mass. For details write Helene G. Lee, R.N., 420 Boylston Street, Boston.

October 23 - November 3—The 1933 Graduate Fortnight of the New York Academy of Medicine. The theme during the two weeks of intensive study will be Metabolic Disorders. A complete program may be obtained by writing Dr. Frederick P. Reynolds, The New York Academy of Medicine, 2 East 103rd Street, New York City.

October 25-30—International Congress on the Scientific and Social Contest Against Cancer will be held at Madrid. For information address Dr. Julio Bejarano, Atocha, 104. Madrid, Spain.

October 28—The American Board of Dermatology and Syphilology will hold written examinations for candidates in the following cities: New York City; St. Louis, Mo.; Boston, Mass.; Cleveland, Ohio; San Francisco, Calif.; Philadelphia, Pa.; Chicago, Ill. Information may be obtained from the Secretary, Dr. C. Guy Lane, 416 Marlborough Street, Boston, Mass.

December 15 and 16—The American Board of Dermatology and Syphilology will hold oral examinations in New York City. Information may be obtained from the Secretary, Dr. C. Guy Lane, 416 Marlborough Street, Boston, Mass.

April 16-20, 1934—The American College of Physicians will hold its Eighteenth Annual Clinical Session in Chicago at the Palmer House. For information write Mr. E. R. Loveland, Executive Secretary, 133-135 South 36th Street, Philadelphia, Pa.

July 24-31, 1934—The IVth International Congress of Radiology will be held in Zurich under the presidency of Professor H. R. Schniz. General Secretary Dr. H. E. Walther, Gloriastrasse 14, Zurich.

BOOK REVIEW

The Surgical Clinics of North America. Volume 13, Number 3, June, 1933. Lahey Clinic Number. W. B. Saunders Company. 275 Pages.

We have learned to expect instructive, practical contributions from the Lahey Clinic, and this volume comes up to expectations.

Lahey's personal articles discuss the refinements of his operation for esophageal diverticula, the selection of the operative procedure for various gastric and duodenal lesions, and the decision for surgery and the management of the patient with hyperthyroidism.

Horrax, who was formerly associated with Cushing, offers an excellent outline of the treatment of pituitary adenomata.

Two cases of regional ileitis are presented by Clute. This rare condition is a non-specific infection of the terminal ileum and its mesentery. The symptoms may be chiefly inflammatory or obstructive, but definite diagnosis is usually made only on exploration. In the presence of obstruction an ileotransverse colostomy should be done.

Overholt emphasizes the value of the removal of long rib segments in the performance of extrapleural thoracoplasty. He also reports a satisfactory result in the treatment of diaphragmatic hernia by simple phrenic nerve interruption.

A new morphine derivative, dilaudid, is discussed by Menard who states that it is a powerful analgesic with little hypnotic effect and that it does not produce gastro-intestinal disturbance.

Haggart's operation for acromio-clavicular joint dislocation not only provides a direct fascia lata repair of the joint but anchors the clavicle to the coracoid process.

These with many other interesting and valuable clinics make this volume well worth the perusal of any surgeon.